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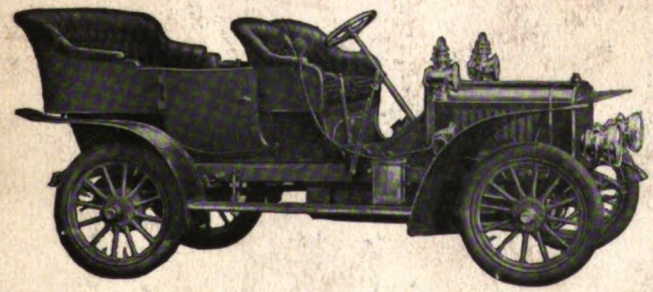
THE AUTOMOBILE TRADE DIRECTORY

PUBLISHED QUARTERLY JANUARY, 1906 PRICE, 25 CENTS

318537

The Model F **Cleveland** 30-35 H. P.

The Car Without a Weak Spot



Showing the Cleveland Model F Equipped with Tulip Body

NO BETTER CAR MADE IN ANY COUNTRY AT ANY PRICE

The Cleveland marks a radical advance in American Automobile Manufacture, and Challenges Comparison with the best European Cars. **Perfect Harmony of Design, Power, Strength and Weight,** with the highest grade of material and expert workmanship are combined in Cleveland Construction.

Among its distinctive features are:—4-Cylinder, Vertical Motor, 30-35 H. P. Imported Simms Bosch, low tension magneto ignition with automatic Make and Brake Spark. Shaft Drive. Nickel Steel, I beam, front axle. 34 x 4 inch wheels. Ball Bearings. Wheel Base 104 inches. Simplest Control.

ABSOLUTELY NOISELESS

Two options are offered on standard body design: Namely: The Cleveland Tulip Body, illustrated above, or the Cleveland Victoria.

Price $3,500 to $5,000, Depending upon Body Equipment. The 20-H. P. Model D will be continued without change. Price $2,800. Both Models guaranteed for one year.

CLEVELAND MOTOR CAR CO., Dept. 40, CLEVELAND, OHIO

Catalogue and full information on request.

Owing to the unusual interest in the CLEVELAND CAR, agents in unassigned territory are advised to enter into early negotiations.

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WE WILL PROVE

Any and all automobile parts that we manufacture by allowing thirty days trial; in fact, we prefer to deal in this way with our customers.

Our reputation for manufacturing reliable and practical automobile parts was established years ago, so that now our Guarantee means that everything we manufacture is as near perfect as science, material and skilled workmen can make them.

Our Carburetor is automatic and furnishes a perfect mixture at any speed; in all kinds of weather They are made to fit any style engine.

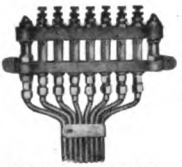
Our transmission has dust-proof bearings. Each bearing being oiled by rings from individual oil wells—being independent of gear bath oil well. Arms made to fit any frame.

Below are illustrated automobile parts we manufacture.

Note the points in the transmission.

CARBURETOR

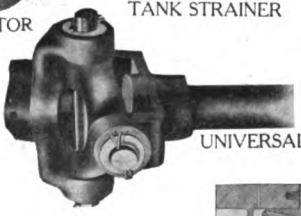
TANK STRAINER



ENGINE OILERS

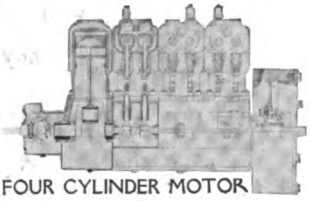
TANK STRAINER

PIPE COUPLING

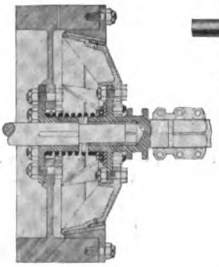


UNIVERSAL JOINT

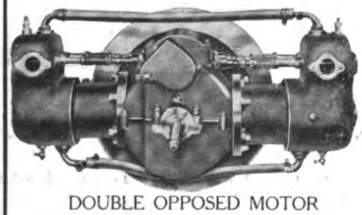
TRANSMISSION GEAR



FOUR CYLINDER MOTOR

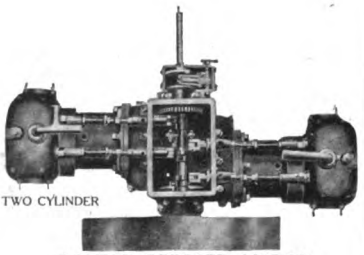


CLUTCH



DOUBLE OPPOSED MOTOR

GREASE CUP



TWO CYLINDER

DOUBLE OPPOSED MOTOR

THE HATCHER AUTO-PARTS CO.

140 VIADUCT — Successors to the Brew-Hatcher Co. — CLEVELAND, O.

Mechanical Engineers, Contractors and Manufacturers of Automobile Parts and Specialties.

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The Automobile Trade Directory

January, 1906

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1907

A Classified List *containing* the Names and Addresses of all American Manufacturers of Complete Automobiles, Motor Cycles, Motor Boats, and of all makers of component Parts & Accessories

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Issued Quarterly

Subscription Price $1.00 per Year. Single Copies 25 Cents, Postpaid

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Classified Trade Directory

—OF—

Automobiles, Motor Boats, Motorcycles and the Automobile Manufacturing Industry, Including Parts and Accessories.

COMPLETE MACHINES

GASOLINE CARS

ACME Motor Car Co., Reading, Pa.
ADAMS Co. (The), Dubuque, Ia.
AEROCAR Co. (The), Detroit, Mich.
AMERICAN Auto Car Co., 4th and Plumb Sts., Cincinnati, O.
AMERICAN Locomotive Automobile Co., Providence, R. I.
APPERSON Bros. Auto. Co., Kokomo, Ind.
ARDSLEY Motor Car Co., Yonkers, N. Y.
ARIEL Motor Car Co., 70 Stanhope St., Boston, Mass.
AUBURN Auto Co., East 7th St., Auburn, Ind.
AUSTIN Auto Co., Grand Rapids, Mich.
AUTOCAR CO. (The), Ardmore, Pa.
AUTO Vehicle Co., Los Angeles, Cal.
BANKER, A. C., 1253 Michigan Ave., Chicago, Ill.
BARTHOLOMEW Co. (The), 110 Bradley Ave, Peoria, Ill.
BERKSHIRE Automobile Co., Pittsfield, Mass.
BLOMSTROM Motor Co., C. H., 1284 River St., Detroit, Mich.
BROWN Mach. Co., James, Pawtucket, R. I.
BUCKEYE Mfg. Co., Anderson, Ind.
BUFFUM Co., H. H., Abingdon, Mass.
BUICK Motor Co., Jackson, Mich.
BURTT Mfg. Co., Kalamazoo, Mich.
CADILLAC Motor Car Co., Detroit, Mich.
CHICAGO Commercial Auto Mfg Co., Harvey, Ill.
CHICAGO Recording Scale Co., Waukegan, Ill.
CHRISTIE Direct Action Motor Car Co., 519 E. 18th St., N. Y. City.
CLEVELAND Motor Car Co., Cleveland, O. (see front cover)
COLUMBUS Buggy Co., Columbus, O. (see page 9).
COLUMBIA Electric Co., McCordsville, Ind.
COMMERCIAL Motor Co., Marion, N. J.
CORWIN Mfg. Co., Peabody, Mass.
CORBIN Motor Vehicle Corporation, New Britain, Conn.
COVERT Motor Vehicle Co., Rochester, N. Y.
CRAWFORD Auto Co., Hagerstown, Md.
CROESUS Motor Car Co., 216 E. 11th St., Kansas City, Mo.
DAIMLER Mfg. Co., Long Island City, N. Y.
DAYTON Motor Car Co., Dayton, O. (see page 7).
DEERE-CLARK Motor Car Co., Moline, Ill.
DETROIT Auto Mfg. Co., 259 Willis Ave., East, Detroit, Mich.
Detroit Auto Vehicle Co., 65-71 Catherine St., Detroit, Mich.
DOLSON Automobile Co., Charlotte, Mich.
DORRIS Motor Car Co., 1211-1217 N. Vande-Water Ave., St. Louis, Mo.
DUQUESNE Construction Co., Jamestown, N. Y.
DURYEA Power Co., Reading Pa.
EISENHUTH Horseless Vehicle Co., Middletown, Conn.
ELECTRIC Vehicle Co. (The), Hartford, Conn.
ELMORE Mfg. Co., Clyde, O.
FAIRMOUNT Engineering Co., 3207 Spring Garden St., Philadelphia, Pa.
FORD Motor Co., Detroit, Mich.
FRANKLIN Mfg. Co., H. H., Syracuse, N. Y.
GAETH Auto Wks., 900 Pearl St., Cleveland, Ohio.
HARRISON Wagon Wks., Grand Rapids, Mich.
HAYNES Automobile Co. (The), Kokomo, Ind.
HILL Motor Car Co., Haverhill, Mass.
HOLSMAN Auto Co., Monadnock Block, Chicago, Ill.
IROQUOIS Motor Car Co., Seneca Falls, N. Y.
IVERSON & Co., J. C., 425 Water St., Milwaukee, Wis.
JACKSON Automobile Co., Jackson, Mich.
JEFFERY, Thos. B. & Co., Kenosha, Wis.
JONES-Corbin Motor Co., Philadelphia, Pa.
KANSAS CITY Motor Car Co., Kansas City, Mo.
KNOX Automobile Co., 40 Waltham Ave., Springfield, Mass.

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One size for cars weighing up to 2,400 lbs. and of 30 H.P.
Other size for cars weighing up to 2,800 lbs. and of 50 H.P.

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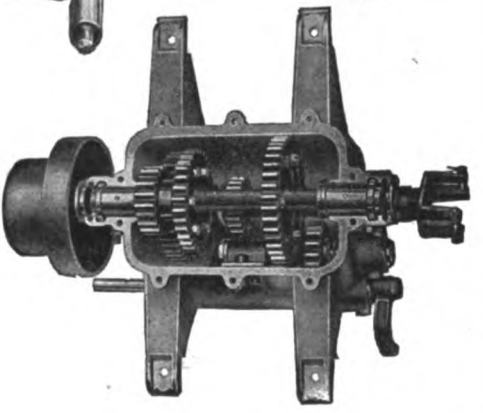
SALES MANAGER—HAYDEN EAMES, AMERICAN TRUST BUILDING, CLEVELAND



Garford Parts

REAR AXLE, Ball or Plain Bearing
FRONT AXLE, " " " "
CHANGE GEAR
STEERING GEAR
CLUTCH
PROPELLER SHAFT
DISTANCE ROD and Bracket
LEVERS for Emergency Brake and Change Gear

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KRUEGER Mfg. Co., 463-465 Front St., Milwaukee, Wis.
LEAR Auto Co., Oscar, Columbus, O.
LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.
LOGAN Construction Co., Chillicothe, O.
LOZIER Motor Co. (The), 1 Broadway, N. Y. City.
MACK Bros. Motor Car Co., Allentown, Pa.
MAHONING Motor Car Co., Youngstown, O.
MARBLE-Swift Automobile Co., 6203 Princeton Ave., Chicago, Ill.
MARION Motor Car Co., W. 15th St. and Big Four Ry., Indianapolis, Ind.
MATHESON Motor Car Co., Wilkesbarre, Pa.
MAXWELL-Briscoe Motor Co., Tarrytown, N. Y.
MICHIGAN Automobile Co., Ltd., Kalamazoo, Mich.
MITCHELL Motor Car Co., Racine Junction, Wis.
MODEL Gas Engine Works, Auburn, Ind.
MODEL Tool Co., Erie, Pa.
MOLINE Auto Co., E. Moline, Ill.
MOON Buggy Co., Jas. W., St. Louis, Mo.
MOTORCAR Co. (The), Detroit, Mich.
NAPIER Motor Car Co. of Amer., Boston, Mass.
NATIONAL Motor Vehicle Co., Indianapolis, Ind.
NORDYKE & Marmon Co., Indianapolis, Ind.
NORTHERN Mfg. Co., Canton and Champlain Sts., Detroit, Mich.
OLDS Motor Works, Lansing, Mich.
PACKARD Motor Car Co., Detroit, Mich.
PEERLESS Motor Car Co. (The), Lisbon St., Cleveland, O.
PIERCE Engine Co., Racine Junction, Wis.
PIERCE, The Geo. N., Co., 6-22 Hanover St., Buffalo, N. Y.
POPE Mfg. Co., Hartford, Conn. (see page 51).
POPE Mfg. Co., Hagerstown, Md.
POPE Motor Car Co., Toledo, O.
PREMIER Motor Mfg. Co., Indianapolis, Ind.
PUNGS-Finch Auto & Gas Eng. Co., Detroit, Mich.
RELIANCE Auto Co., 67-99 E. Fort St., Detroit, Mich.
REO Motor Car Co., Lansing, Mich.
ROYAL Motor Car Co., Cleveland, O. Mo. (see page 13).
ST. LOUIS Car Co., St. Louis, Mo.
ST. LOUIS Motor Carriage Co., Peoria, Ill. (see page 9).
SAMPSON, Alden Co., Pittsfield, Mass.
SCHACHT Mfg. Co., 2727-2731 Spring Grove Ave., Cincinnati, O.
SILENT Knight Auto Co., Chicago, Ill.
SIMPLEX Motor Veh. Co., Mishawaka, Ind.
SMITH Auto Co., Topeka, Kan.
SMITH & Mabley, 7th Ave. and 38th St., New York.
STEARNS, The F. B., Co., Euclid and Lake View Aves., Cleveland, O.
STEVENS Arms and Tool Co., J., Chicopee Falls, Mass.
STUDEBAKER Automobile Co., South Bend, Ind.
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.
TINCHER Motor Car Co., Jackson Blvd. and Robey St., Chicago, Ill.
TWYFORD Motor Car Co., Brookville, Pa.
UPTON Motor Co., Lebanon, Pa.
VIQUEOT Co. (The), Long Island City, N. Y.
WALTER Car (The), 49-51 W. 66th St., New York.
WALTHAM Mfg. Co., Waltham, Mass.
WARREN Auto Co., Warren, Pa.
WATERLOO Motor Works, Waterloo, Ia.
WAYNE Automobile Co., 129 Champlain St., Detroit, Mich.
WELCH Motor Car Co., Pontiac, Mich.
WESTERN Motor Truck & Vehicle Co., 261 Dearborn Ave., Chicago, Ill.
WESTERN Tool Works, Galesburg, Ill.
WINTON Motor Carriage Co. (The), Beres Road, Cleveland, O.
WOLVERINE Auto & Commercial Vehicle Co., Dundee, Mich.
WOODS Motor Veh. Co., 110 E. 20th St. Chicago, Ill.
YORK Motor Car Co., York, Pa.
ZENT Auto Co., Bellefontaine, O.

GASOLINE COMMERCIAL VEHICLES

AMERICAN Motor Truck Co., Toledo, O.
CHICAGO Commercial Auto Mfg. Co., Harvey, Ill.
CHICAGO Motor Vehicle Co., Harvey, Ill.
CONSOLIDATED Motor Co., 148 W. 56th St., New York.
CORWIN Mfg. Co., Peabody, Mass.
DAIMLER Mfg. Co., 959 Steinway Ave., Long Island City, N. Y.
EISENHUTH Horseless Vehicle Co., Middletown, Conn.
EMPIRE State Engineering Works, 555 E. 116th St., New York City.
FOUR Wheel Drive Wagon Co., 3202-3210 Vliet St., Milwaukee, Wis.
HUBER Auto Co., Atwater and Antoine Sts., Detroit, Mich.
JEFFERY & Co., Thos. B., Kenosha, Wis.
JONES (The), S. H. Co., 600 Segur Ave., Toledo, O.
KNOX Automobile Co., 40 Waltham Ave., Springfield, Mass.
KNOX Motor Truck Co., Springfield, Mass.
MACK Bros. Motor Car Co., Allentown, Pa.
OLDS Motor Works, Lansing, Mich.
PACKARD Motor Car Co., Detroit, Mich.
RAPID Motor Vehicle Co., Pontiac, Mich.
ST. LOUIS Car Co., St. Louis, Mo.
SOULES Motor Car Co., Grand Rapids, Mich.
STEVENS Arms & Tool Co., J., Chicopee Falls, Mass.
UNION Motor Truck Co., Philadelphia, Pa.
UNITED Motor & Vehicle Co. (The), 150 Nassau St., New York.
WOLVERINE Auto & Commercial Vehicle Co., Dundee, Mich.

ELECTRIC RUNABOUTS AND CARRIAGES

BAKER Motor Vehicle Co., 116 Jesse St., Cleveland, O.
BABCOCK Electric Carriage Co., 240 W. Utica St., Buffalo, N. Y.
CANTONO Electric Tractor Co., Flatiron Bldg., New York.
COLUMBUS Buggy Co., Columbus, O. (see (see page 9).
COMMERCIAL Motor Vehicle Co., Detroit, Mich.
ELECTRIC Vehicle Co., Hartford, Conn.
ELECTRIC Vehicle Equipment Co., 20th and Montgomery Ave., Philadelphia, Pa.

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1906 **ST. LOUIS** 1906

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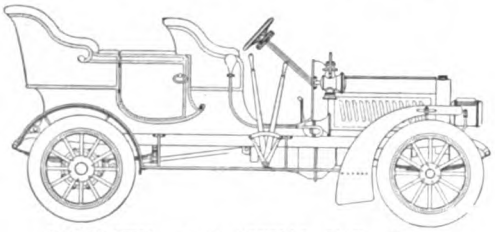

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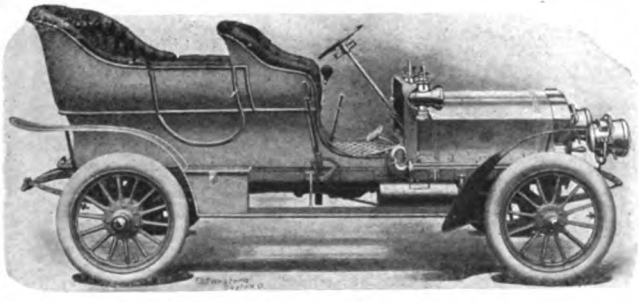
MODEL D

Stoddard-Dayton



The car that strikes the ideal medium between exorbitant frills and cheap unworthiness.

The **Stoddard-Dayton** leads in sales—because its worth is not upon paper, but in the car. Because one machine sells another. Because the makers back up the agent, and back up the purchaser, with a guarantee that works out as splendidly as it promises. The handsomest car of all—standard finish, pearl gray with tan upholstering; other colors optional with purchaser.

Stoddard-Dayton Model D. 4-cylinder, vertical motor, 4½x5 cylinders, 30-35 H.P., selective type sliding gear transmission, 3 speeds and reverse, controlled by a single lever operating in a guide of the H-slot type. Operator can pass from any gear to other gear at will, up hill or down without noise or clashing. Roller bearings throughout, floating type, clutch driven rear axle with large bevel gears, mechanical lubrication. 2,100 pounds, $2,250. Advance catalog ready. Write for our new catalog fully describing the Stoddard Dayton Touring Car, Runabout and Limousine for 1906.

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PARSONS Elec. Motor Carriage Co., Cleveland, O.
POPE Motor Car Co., Indianapolis, Ind.
ROYAL Automobile Co., 144 So. Green St., Chicago, Ill.
STUDEBAKER Automobile Co., South Bend, Ind.
SYNNESTVEDT Machine Co., 4117 Liberty Ave., Pittsburgh, Pa.
VEHICLE Equipment Co., Borden and Review Aves., Long Island City, N. Y.
WOODS Motor Vehicle Co., 110-12 East 20th St., Chicago, Ill.

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COMMERCIAL Motor Vehicle Co., Detroit, Mich.
ELECTRIC Vehicle Co., Hartford, Conn.
HOLSON Motor Patents Co., Ltd., Grand Rapids, Mich.
LANSDEN Co. (The), Newark, N. J.
POPE Motor Car Co., Indianapolis, Ind.
STUDEBAKER Automobile Co., South Bend, Ind.
SYNNESTVEDT Machine Co., 4117 Liberty Ave., Pittsburgh, Pa.
VEHICLE Equipment Co., Borden and Review Aves., Long Island City, N. Y.

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GROUT Bros.' Automobile Co., Orange, Mass.
JOHNSON Service Co., 149-153 Michigan St., Milwaukee, Wis.
LANE Motor Vehicle Co., Poughkeepsie, N.Y.
LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.
STANLEY Motor Carriage Co., Newton, Mass.
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COMMERCIAL Truck & Power Co., 171 Main St., Rahway, N. J.
GROUT Bros. Automobile Co., Orange, Mass.
JOHNSON Service Co., 149-153 Michigan St., Milwaukee, Wis.
LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.
TRACTOR Co. (The), 3rd and Trumbull Sts., Elizabethport, N. J.
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AMERICAN Yacht & Motor Co., Cherokee and DeKalb Sts., St. Louis, Mo.
AUTO Boat Co., West Mystic, Conn.
AYERS & Son, A., Nyack, N. Y.
BARRETT'S Son, A., Camden, Me.
BAY Ridge Launch Works, foot 39th St., Brooklyn, N. Y.
BEERS Bros. Engine Co., Culver Road, Rochester, N. Y.
BELLOWS, M. S., Chateaugay Lake, N. Y.
BENTER, Worth S., Catskill, N. Y.
BROOKS Boat Mfg. Co., Bay City, Mich.
BUFFUM Co., H. H., Abingdon, Mass.
BURGESS & Packard, Board of Trade Bldg., Boston, Mass.
CHASE Yacht & Eng. Co., Providence, R. I.
CHURCH Motor & Launch Co., 62 William St., New York City.
CONSOLIDATED Motor Co., 148 W. 56th St., New York.
DELAWARE River Motor Co., Chester, Pa.
DeMOOY Bros., 765 Willson Ave., Cleveland, O.
DOMAN Co., H. C., Oshkosh, Wis.
DUTTON Engineering Co., Perth Amboy, N. J.
ELECTRIC Launch Co. (The), Bayonne, N. J.
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FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRBANKS, Morse & Co., Chicago, Ill.
FAY & Bowen, 92 Lake St., Geneva, N. Y.
FRASER Hollow Spar & Boat Co., Greenport, L. I.
GERE Launch & Engine Works, 234 Palisade Ave., Yonkers, N. Y.
GLOBE Iron Works, Menomonie, Wis.
HENERHOFF Mfg. Co., Bristol, R. I.
HEPBURN, J. W., Toledo, O.
HUNTER, E., Boat Mfg. Co., 2967-69 State St., Chicago, Ill.
HUNTINGTON Mfg. Co., New Rochelle, N. Y.
ISHAM Co., Norwich, Conn.
JACOB, R., City Island, N. Y.
JONES & Laborde, Oshkosh, Wis.
KIDNEY, Dan & Son, West DePere, Wis.
LAKE Shore Engine Works, Marquette, Mich.
LAMB Boat & Engine Co., Clinton, Ia.
LANLEY & Son Corp., South Boston, Mass.
LEGARE, J. L., Ogdensburg, N. Y.
LEIGHTON, H. J., Syracuse, N. Y.
LOZIER Motor Co. (The), 1 Broadway, New York City.
MARBLEHEAD Yacht Yard, Marblehead, Mass.
MARINE Eng. & Mach. Co., Harrison, N. J.
MATHER, The C. B., Corporation, Rowley, Mass.
MATTHEWS Boat Co., Bascom, O.
MEDART, Fred, St. Louis, Mo.
MIANUS Motor Works, Mianus, Conn.
MICHIGAN Steel Boat Co., 1252 Jefferson Ave., Detroit, Mich.
MILTON Point Shipyard, Rye, N. Y.
MILTON, T. M., Brewerton, N. Y.
MULLINS Co., W. H., 124 Franklin St., Salem, O.
NEW York Kerosene Oil Engine Co., 31 Burling Slip, New York.
N. Y. Yacht, Launch & Engine Co., Morris Heights, N. Y.
NOCK, F. S., East Greenwich, R. I.
NORWALK Launch Co., Norwalk, Conn.

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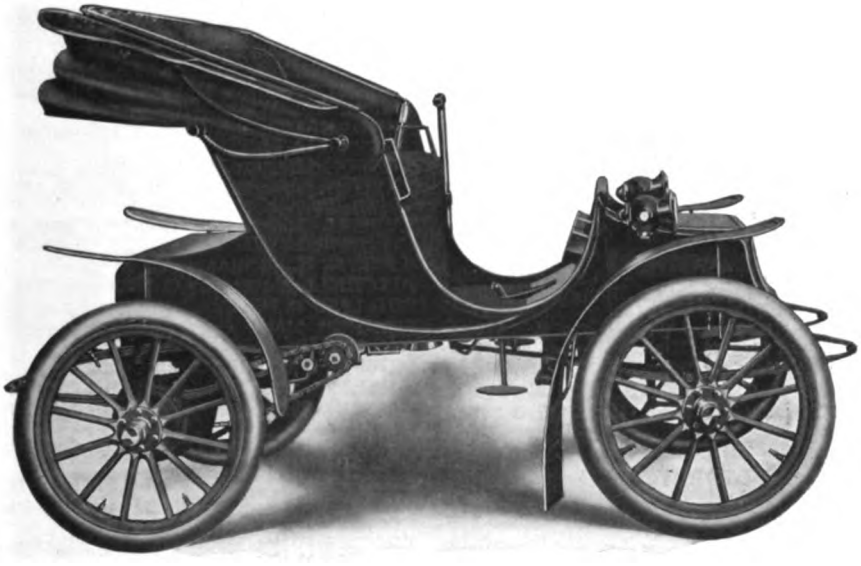

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ROCHESTER Gas Eng. Co., Rochester, N. Y.
SMITH & Mabley, New York City.
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TOQUET Launch & Motor Co. (The), Saugatuck, Conn.
TRUSCOTT Boat Mfg. Co., St. Joseph, Mich.
WILLIAMS-Whittlesey Co., Long Island City, N. Y.
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WRIGHT, U. G., Paulsboro, N. J.
YACHT, Launch & Eng. Co., Philadelphia, Pa.

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DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.
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GEER CO., Harry R., 1018 Pine St., St. Louis, Mo.
GRAY & Crouch, Stoneham, Mass.
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HARLEY-Davidson Motor Co., 315 39th St., Milwaukee, Wis.
HENDEE Mfg. Co., 216 Worthington St., Springfield, Mass.
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RELIANCE Motor Cycle Co., Addison, N. Y.
STEFFEY Mfg. Co., 2722 Brown St., Philadelphia, Pa.
THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.
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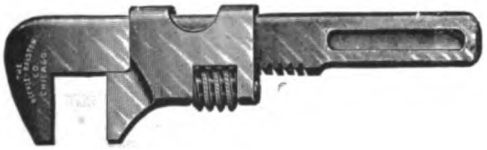

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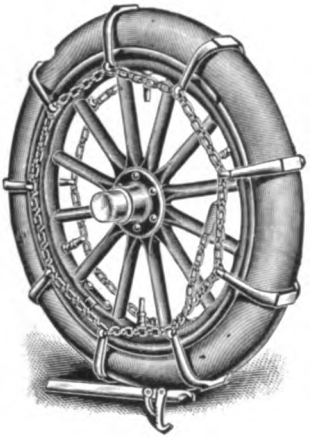

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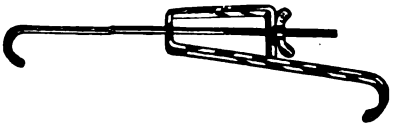

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EDMUNDS & Jones Mfg. Co., 315 Riopelle St., Detroit, Mich.
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MOORE & Son Co., M. E., Westfield, Mass.
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LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 19).
NEW JERSEY ALUMINUM Co., 19th St. and Springfield Ave., Newark, N. J.
OBERDORFER Brass Co., M. L., 804 E. Water St., Syracuse, N. Y.
PIONEER Brass Works, Indianapolis, Ind.
PITTSBURG Reduction Co., Pittsburg, Pa.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 29).
U. S. ALUMINUM Casting Co. (The), Cincinnati, O.
U. S. BRONZE Co., Cleveland, O.

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AUTOMOBILE Equipment Co., 263 Jefferson Ave. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BRISTOL Co., Waterbury, Conn.
CAPITOL Elec. Engineering Co., Lansing, Mich.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 81).
DONGAN Instrument Co., Albany, N. Y.
DOW Portable Elec. Co., Braintree, Mass.
ELDREDGE Electric Mfg. Co., 227 Main St., Springfield, Mass. (see page opposite).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FORT WAYNE Electric Works, Fort Wayne, Ind.
GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
GENERAL Electric Co., Schenectady, N. Y.
JEWELL Elec. Instrument Co., Chicago, Ill.
KENDRICK & Davis, Lebanon, N. H.
KENT Mfg. Co., Atwater, 50 N. 6th St., Philadelphia, Pa. (see page opposite).
KEYSTONE Electrical Instrument Co., Philadelphia, Pa.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
NORTON Electrical Instrument Co., Manchester, Conn.
PIGNOLET, Louis M., 78 Cortlandt St., New York, N. Y.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
ROBERT Instrument Co. (The), 56 Shelby St., Detroit, Mich.
QUEEN & Co., Philadelphia, Pa.
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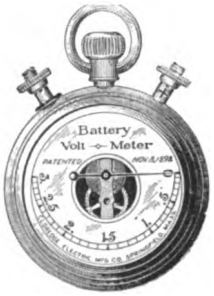

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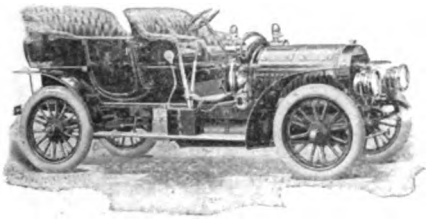

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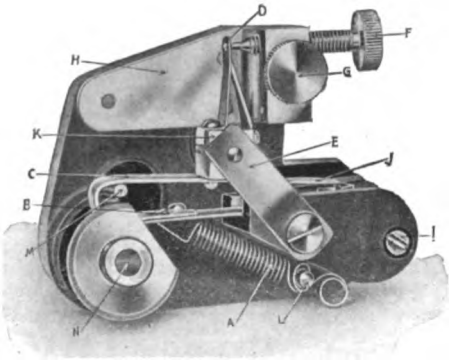

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MANHATTAN Leather Tire Works, 203 West 26th St., New York City.
MESINGER Mfg. Co., H. & F., 1801 First Ave., N. Y. City.
N. Y. Broadway Rubber Tire Co., 253 West 47th St., New York City.
PENNSYLVANIA Rubber Co. of N. Y., 52d St. and Broadway, New York City.
POST Mfg. Co. (The), Rutherford, N. J.
REPUBLIC Rubber Tire & Shoe Co., 449-451 W. 53d St., N. Y. City (see page 43).
SUNBURY Mfg. Co., Sunbury, O.
WEED Chain Tire Grip Co., 28 Moore St., N. Y. City.

ANVILS

EAGLE Anvil Wks., Trenton, N. J.

APRONS (Storm)

AUTO. Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).
FAIRFIELD Rubber Co., Fairfield, Conn.
GILBERT Mfg. Co., New Haven, Conn. (see page 35).
KROH, C. Z., Mfg. Co. (The), 120 St. Clair St., Toledo, O.
PERFECTION Storm Shield Co., Clyde, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
VEHICLE Apron & Hood Co., Columbus, O.
WOOD & Son, Fred'k R., 219 W. 19th St., New York City.

ASBESTOS

ASBESTOS Mfg. Co., Philadelphia, Pa.
CAREY Mfg. Co., Philip (The), Lockland, O.
GILMOUR Co., R. M., New York, N. Y.
JOHNS-Manville, H. W., Co., 100 William St. N. Y. City.
KEASBY & Mattison Co., Ambler, Pa.
NEW Jersey Asbestos Co., Camden, N. J.
N. Y. ASBESTOS Mfg. Co., 123 Cortlandt St., N. Y. City.
WATSON, H. F., Co., Erie, Pa.

AXLE ENDS (See Drop Forgings)

AXLES

AMERICAN Air Tool Co., Dunkirk, N. Y.
AMERICAN Ball Bearing Co., Cleveland, O.
AMERICAN Roller Bearing Co., So. Framingham, Mass.
CONCORD Axle Co., Concord, N. H.
CONSOLIDATED Mfg. Co., Toledo, O.
GARFORD Co. (The), Elyria, O. (see page 5).
Hussey Drop Forge & Mfg. Co., Cleveland, O.
KINSEY Mfg. Co., Dayton, O. (see back cover).
LEE & Porter, Buchanan, Mich.
LOOMIS Autocar Co., Westfield, Mass.
MACHINERY Forging Co., Hamilton and Marquette Sts., Cleveland, O.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
REESE Mach. & Tool Works, 224 Main St., Plymouth, Pa.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.
TIMKEN Roller Bearing Axle Co., Canton, O.
WEBSTER Mfg. Co., 1075 West 15th St., Chicago, Ill.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

AXLES (Ball Bearing)

AMERICAN Ball Bearing Co., Seward Ave. and L. S. & M. S. Ry., Cleveland, O.
CASE Mfg. Co., Curtis and Lexington Aves., Columbus, O.
GARFORD Co. (The), Elyria, O. (see page 5).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
KIMBARK Co., S. D., 80-84 Mich. Ave., Chicago, Ill.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
SMITH CO., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th and Girard Ave., Philadelphia, Pa.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

AXLES (Roller Bearing)

AMER. Roller Bearing Co., So. Framingham, Mass.
CASE Mfg. Co., Curtis and Lexington Ave., Columbus, O.
CONSOLIDATED Mfg. Co., Toledo, O.
DALZELL Axle Co., So. Egremont, Mass.
MOFFETT Vehicle Bearing Co., Saginaw, W. S., Mich.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th St. & Girard Ave., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

BALLS (Steel)

AMERICAN Ball Bearing Co., Cleveland, O.
AMERICAN Ball Co., Eagle St. and Kingsley Ave., Providence, R. I.
BOSTON Gear Works, Boston, Mass.
EXCELSIOR Machine Co., Military Road, Buffalo, N. Y.
JONES & Co., E. J., Arlington Heights, Mass.
STANDARD Roller Bearing Co., Philadelphia, Pa.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 57).

BALL RETAINERS

SARTUS Ball Bearing Co., 594 B'way, N. Y. City.
STAR BALL Retainer Co., Lancaster, Pa.

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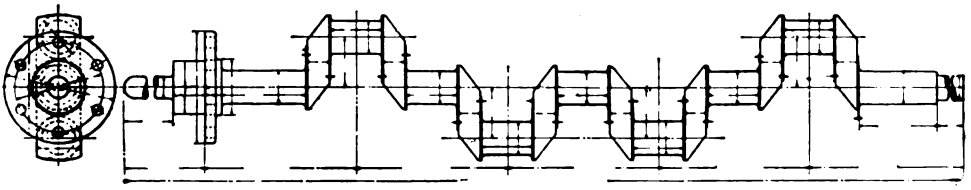

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BASKETS, HAMPERS AND TOURING CASES (See Hampers)

BATTERIES (Primary)

AMERICAN Battery Co., 170-172 S. Clinton St., Chicago, Ill.
AMERICAN Coil Co., Foxboro, Mass.
AMERICAN Electric Novelty Co., 308 Hudson St., N. Y. City.
BURNLEY Battery Co., Painesville, O.
COLUMBIA Dry Battery Co., 220 B'way, N. Y. City.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 81).
DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co. (The), Braintree, Mass.
EASTERN Carbon Wks., W. Bergen, Jersey City, N. J.
EDISON Mfg. Co., Orange, N. J.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.
ELECTRIC Storage Battery Co., Philadelphia, Pa.
EXCELSIOR Dry Battery Co., 34 Vesey St., New York City.
FORTO Electric Co., 52 Water St., N. Y. City.
GORDON Battery Co., 439-445 E. 144th St., N. Y. City.
HAWES Electric Co., 137 State St., Springfield, Mass.
HUSSEY Dynamo Battery Co. (The), 39 Cortlandt St., N. Y. City.
LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.
NATIONAL Carbon Co., Cleveland, O. (see page 13).
NEW Excelsior Dry Battery Co., 32 Vesey St., N. Y. City.
NON-POLARIZING Co., 28 Broome St., New York City.
NOVELTY Electric Co., Phila., Pa.
NUNGESSER Electric Battery Co. (The), 27-33 King St., Cleveland, O.
ROCHE, Wm., 52-54 Park Place, N. Y. City.
ROCK Island Battery Co., Cincinnati, O.
ROYAL Battery Co., 143 Chambers St., N. Y. City.
SWAN Elec. Co., 21 State St., New York, N. Y.
U. S. Battery Co. (The), New Rochelle, N. Y.
WESCO Supply Co. (The), 7th St. & Clark Ave., St. Louis, Mo.

BATTERIES (Storage)

AMERICAN Battery Co., 172 South Clinton, Chicago, Ill.
BADT-Goltz Engineering Co., 1504 Monadnock Bldg., Chicago, Ill.
BATTERY Power Co., 247-253 Madison St., Milwaukee, Wis.
CHICAGO Battery Co., Michigan Ave & 14th St., Chicago, Ill.
CHICAGO Pneumatic Tool Co., Fisher Bldg., Chicago, Ill.
CLARK, A. F. & Co., 2130 W. Susquehanna Ave., Philadelphia, Pa.
COLUMBUS Storage Battery Co., Columbus, Ohio.
CROFTAN Storage Battery Co., Toronto, Canada.
CROWDUS Storage Battery Co., 541 Wabash Ave., Chicago, Ill.
DAYTON Electrical Mfg. Co., Dayton, O.
DAYTON Mfg. Co., 2240 E. 3d St., Dayton, O.
EDISON Storage Battery Co., Orange, N. J.
ELECTRIC Storage Battery Co. (The), Allegheny Ave and 19th St., Philadelphia, Pa.
ELECTRIC Vehicle & Supply Co., 4th and Prairie Sts., Milwaukee, Wis.
EMPIRE Storage Battery Co., 42 E. 23d St., N. Y. City.
G. & C. Dry Battery Mfg. Co., 57 W. 3rd St., N. Y. City.
GOULD Storage Battery Co., 25 West 33d St., N. Y. City.
HASCHKE Compound Storage Battery Co., 89 Ashland Blvd., Chicago, Ill.
HATCH Accumulator Co., Charlestown, Boston.
HELIOS Mfg. Co., Bridesburg, Pa.
HERZ & Co., Elm and Marion Sts., New York City (Importers) (see page 39).
LITTLE Giant Storage Battery Co., 1255 Mich. Ave., Chicago, Ill.
LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.
MACRAE, Hector, 316 St. Paul St., Baltimore, Md.
MICHIGAN Storage Battery Co., 211 Jefferson Ave., Detroit, Mich.
NATIONAL Battery Co., 268-282 Mass. Ave., Buffalo, N. Y.
NATIONAL Electric Supply Co., Washington, D. C.
NEW England Motor Co. (The), 82 Fletcher St., Lowell, Mass.
NORTHWESTERN Storage Battery Co., 285 E. Madison St., Chicago, Ill.
PERRETT Storage Battery Co., 17 State St., N. Y. City.
PILE Bloc Co., 253 B'way, New York.
PORTER Battery Co., 195 S. Canal St., Chicago, Ill.
ROYAL Battery Co., 143 Chambers St., N. Y. City.
RUBAY, Leon, 136 West 38th St., N. Y. City (Importer).
RUCKERT, G. R., 13 E. 39th St., N. Y. City.
RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.
SMITH Storage Battery Co., 198 State St., Binghamton, N. Y.
STORAGE Battery Supply Co., 239 East 27th St., N. Y. City.
TOLEDO Storage Battery & Elec. Co., 102 Ottawa St., Toledo, O.
TRAY Plate Battery Co. (The), 5 Frederick St., Binghamton, N. Y.
U. S. Battery Co., New Rochelle, N. Y.
UNIVERSAL Elec. Storage Battery Co., 1355 Railway Exchange, Chicago, Ill.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WESTERN Storage Battery Co., Indianapolis, Ind.
WILLARD Storage Battery Co. (The), Cleveland, O.
WITHERBEE Igniter Co., 541 West 43d St., N. Y. City (see page opposite).

BEARINGS (Ball)

AMERICAN Ball Co., Providence, R. I.
AMERICAN Ball Bearing Co., Cleveland, O.
AUBURN Ball Bearing Co., Crane Bldg., Auburn, N. Y.
BANTAM Anti-Friction Co., Bantam, Conn.
CHAPMAN Double Ball Bearing Co., Sudbury St., Boston, Mass.
HESS-Bright Mfg. Co., 245 N. Broad St., Philadelphia, Pa.

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PRESSED Steel Mfg. Co., 545 The Bourse, Philadelphia, Pa.
REESE Machine & Tool Works, Plymouth, Pa.
SARTUS Ball Bearing Co., 155 Spring St., N. Y. City.
STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.
STAR Ball Bearing Axle Co., Princeton, Ill.
WORCESTER Pressed Steel Co., Worcester, Mass.

BEARINGS (Brozne)

ADVANCE Mfg. Co., Kalamazoo, Mich.
ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 31).
BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.
CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.
CLARK, John W., Albany, N. Y.
CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.
CRAMP, Wm. & Sons, Ship & Engine Building Co., Philadelphia, Pa.
HI-SPEED Bronze Co., 2235 Vine St., Philadelphia, Pa.
Hofeller-Brooks Brass Fery. Co., 74-78 Fort St., E. Detroit, Mich. (see page 35).
HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.
LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page opposite).
PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.
PIONEER Brass Works, Indianapolis, Ind.
PROVIDENCE Brass Fdry. & Mach. Co., Providence, R. I.
REEVES & Son, Paul S., 1415 Catharine St., Philadelphia, Pa.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 29).
WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

BEARINGS (Roller)

AMERICAN Roller Bearing Co., South Framingham, Mass.
BANTAM Anti-Friction Co., Bantam, Conn.
CONCORD Axle Co., 26 Crescent St., Penacook, N. H.
HUTCHINSON Mfg. Co., J., Jackson, Mich.
HYATT Roller Bearing Co., Harrison, N. J.
MOFFETT Vehicle Bearing Co., 922 S. Niagara St., Saginaw, Mich.
PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.
STANDARD Roller Bearing Co., Girard Ave. and 48th St., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
WAGNER Mfg. Co., 5-7 Prospect St., Rochester, N. Y.
WRIGHT Taper Roller Bearing Co., Mutual Life Bldg., Buffalo, N. Y.

BELLS

ANSONIA Electrical Co., Ansonia, Conn.
BEVIN Bros. Mfg. Co., East Hampton, Conn.
BRIDGEPORT Brass Co., Bridgeport, Conn.
COLE & Son, Rockford, Ill.
EAST Hampton Bell Co. (The), East Hampton, Conn.
EDWARDS & Co., 405 E. 144th St., N. Y. City.
GONG Bell Mfg. Co., East Hampton, Conn.
HILL, N. N., Brass Co., East Hampton, Conn.
HOLTZER-Cabot Electric Co., Brookline, Mass.
LIBERTY Bell Co., Bristol, Conn.
MOSSBERG, Frank., Co., Attleboro, Mass.
NEW Departure Mfg. Co., Bristol, Conn.
PROCTOR-Raymond Mfg. Co., Detroit, Mich.
STARR Bros. Bell Co., East Hampton, Conn.

BODIES (Wood and Metallic)

ABRESCH Co., Charles, 398 4th St., Milwaukee, Wis.
AMERICAN Veneer Co., Kenilworth, N. J.
ARMSTRONG, M., & Co., 433 Chapel St., New Haven, Conn.
AUTO Body Co. (The), Franklin Ave., Lansing, Mich.
A-Z Co. (The), 462 11th Ave., N. Y. City.
BIDDLE and Smart Co., Amesbury, Mass.
BORBEIN, H. F., & Co., St. Louis, Mo.
BORCHERS Tonneau Mfg. Co., Dayton, O.
BRIGGS Carriage Co., Amesbury, Mass.
BUCKEYE Carriage Body Co., Bellefontaine, Ohio.
BUOB & Scheu, 408 E. Court St., Cincinnati, Ohio.
CARLISLE Body & Gear Wks., Carlisle, Pa.
CARRIAGE Woodstock Co., Owensboro, Ky.
CARTIER, Chapman & Co., Ludington, Mich.
CENTRAL Mfg. Co., Connersville, Ind.
CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.
CRAWFORD, G. W. & H. D., Delhi, N. Y.
CRUMRINE Cycle Co., 110 Washington Ave., Greenville, O.
CURRIER-Cameron Co. (The), Amesbury, Mass.
DANN Bros. & Co. (The), 80-88 Franklin St., New Haven, Conn.
DEMOREST, A. L., New Haven, Conn.
DETROIT Carriage Co., Detroit, Mich.
ECLIPSE Buggy Co., Fort Wayne, Ind. (see page 91).
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
EXCELSIOR Seat Co., Columbus, O.
FORD Mfg. Co., Kalamazoo, Mich.
FOSTORIA Fdry. & Mach. Co., Fostoria, O.
FRANTZ Body Mfg. Co. (The), Akron, O.
GOOLD, James Co., Albany, N. Y.
HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.
HOLCOMB, H. C., 105 Goffe St., New Haven, Conn.
HORTON, H. A., 127-131 Park St., New Haven, Conn.
HOWARTH & Rogers, Amesbury, Mass.
JACKSON Body Co., Jackson, Mich.
KEYSTONE Wagon Wks., Reading, Pa.
KILLAM, Henry, Chestnut & Wooster Sts., New Haven, Conn.
KIMBALL & Co., C. P., 315 Michigan Ave., Chicago, Ill.
KIMBARK, S. D., 80-84 Michigan Ave., Chicago, Ill.
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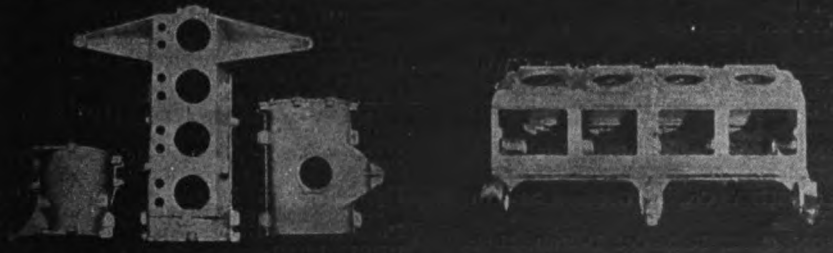

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LAWRENCE & Co., L., Newark, N. J.
LEITCH Mfg. Co., Amesbury, Mass.
LIMOUSINE and Carriage Mfg. Co., Chicago, Ill.
LOCKE & Co., 218 W. 84th St., N. Y. City.
MICHIGAN Automobile Body Co. (The), 1425-41 Gratiot Ave., Detroit, Mich.
MIDDLETOWN Auto Body Co., Middletown Conn.
MILLER, A. J., Bellefontaine, O.
MINOGUE Body & Seat Co., Kansas City, Mo.
MOORE & Munger Co., 602 W. 52d St., New York.
NEUSTADT, Auto & Supply Co., 826-30 South 18th St., St. Louis, Mo.
NEW Haven Carriage Co., New Haven, Conn.
NEWTON, W. H., & Son, 127 Elm St., Cortlandt, N. Y.
NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.
NOVELTY Mfg. Co., Racine, Wis.
OHIO Scroll & Lumber Co., Covington, Wy.
OHIO Carriage Body Co., Bellfontaine, O.
PEEZ & Hoffman, 3d St., near Fowler, Milwaukee, Wis.
PETZELT & Keyser, 24th & Locust Sts., Philadelphia, Pa.
PITTSBURGH Reduction Co., Pittsburgh, Pa.
PONTIAC Body Co., Pontiac, Mich.
QUINBY, J. M., & Co., 1534 Broadway, N. Y. City. Factory, Newark, N. J.
QUINSLER & Co., 26-30 Cambria St., Boston, Mass.
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
READING Metal Body Co., Reading, Pa.
RECH, Jacob & Sons, 8th St. & Girard Ave., Philadelphia, Pa.
RIVERSIDE Body Factory, Court & Wilkeson Sts., Buffalo, N. Y.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
SEABROOK & Smith Carriage Co., 126 Park St., New Haven, Conn.
SHIELDS Carriage Co. (The), Amesbury, Mass.
SHULER Carriage Works, Greenville, O.
SPRINGFIELD Metal Body Co., Springfield, Mass.
STEWART, W. F. Body Co., Flint, Mich.
STONE & Sons, C., 167-177 Ogden Ave., Chicago, Ill.
STRATTON Carriage Body Co., Muncie, Ind.
STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.
TERRE Haute Carriage & Body Co., Terre Haute, Ind.
UNION Buggy Co., Pontiac, Mich.
WILCOX, M. E., Providence, R. I.
WILLOUGHBY Co., 86 Genesee St., Utica, N. Y.
WILSON, C. R., Body Co., Detroit, Mich.
WOGAMAN, J. Webster, Union City, Ind.
WOOD, A. M., 51 Beverly St., Boston, Mass.
WOOD & Son, Frederick R., 219-221 W. 19th St., New York City.
WRIGHT Carriage Body Co., Moline, Ill.
YORK Wagon & Gear Co., York, Pa.

BODY REBUILDING

AUTO-Rebuilding Co., 217 N. Alabama St., Indianapolis, Ind. (see page 75).

BOILERS

AMERICAN Boiler Co., 85 N. Kedzie Ave., Chicago, Ill.
BIGELOW Co. (The), New Haven, Conn.
BOSS Knitting Mach. Works, Reading, Pa.
FORG, Peter, Park St., Somerville, Mass.
FRANTZ Auto Co., Cherryville, Pa.
GENEVA Auto. Mfg. Co., Geneva, O.
HOLMES, J., & Co., 518 Broad St., Newark, N. J.
KILBURN, Edwin, Spring Valley, Minn.
KNAPP Mfg. Co., 2529 Polk St., N. E., Minneapolis, Minn.
LOCKE Regulator Co., Salem, Mass.
MILNE, Frank, Everett, Mass.
OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.
ROCHESTER Machine Tool Wks., Rochester, N. Y.
SCHAFFER Machine Mfg. Co. (The), 211 N. Calvert St., Baltimore, Md.
STEAM Carriage Boiler Co., Oswego, N. Y.
THROOP Perforating Co., 80 Terrace, Buffalo, N. Y.
TONKIN Boiler Co., Oswego, N. Y.
TREMAIN, C. J., Bradford, Pa.
UNITED Motor & Vehicle Co., 150 Nassau St., N. Y. City.

BOILER TUBE EXPANDERS (See Tube Expanders)

BOLTS AND NUTS

AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.
ATLAS Bolt & Screw Co. (The), Cleveland, Ohio.
BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.
CHICAGO Screw Co, 2 Canal St., Chicago, Ill.
CLARK Bros. & Co., Milldale, Conn.
COLUMBIA Lock Nut Co., Bridgeport, Ct.
COLUMBIA Nut & Bolt Co., 25 Broad St., N. Y. City.
COLUMBUS Bolt Wks., 162 W. Randolph St., Columbus, O.
DETROIT Screw Works, Detroit, Mich.
FRANKLIN Moore Co., Winsted, Conn.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
KIRK-Latty Co., Cleveland, O.
LAMSON & Sessions Co., 412-453 Scranton Ave., Cleveland, O.
NATIONAL Screw and Tack Co., Cleveland, Ohio.
PENINSULAR Milled Screw Co., Detroit, Mich.
PROGRESSIVE Mfg. Co., Torrington, Conn.
REPUBLIC Iron and Steel Co., Stock Exch. Bldg., Chicago, Ill.
RUSSELL, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
WESTERN Automatic Machine Screw Co., Elyria, O.
WORCESTER Machine Screw Co., Worcester, Mass.

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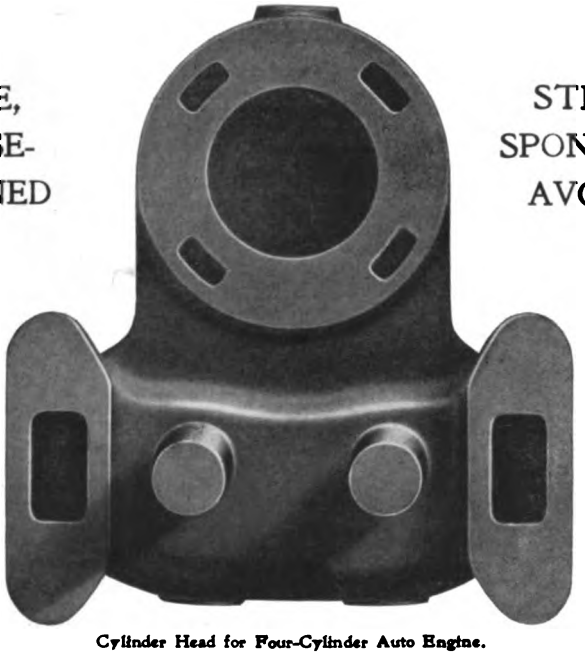

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BOOTS (See Cases, Engine, Gear and Chain)

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ASHTABULA Carriage Bow Co., Ashtabula, Ohio.
BROWN & Co., S. N., Dayton, Ohio.
COOPS Co., C. W., 3 Appleton St., Boston, Mass.
CRANDALL, Stone & Co., Binghamton, N. Y.
TOPLIFF, I. N., Mfg. Co. (The), Cleveland, O.

BOXES (Spark Coil)

KUNDTZ, Theo., Cleveland, O.
MURRAY, W. F., 28 Beach St., Boston, Mass.
F. M. WEST Box Co., Springfield, Mass.

BRAKES

DUCK Brake Co., 335 Broadway, N. Y. City.
FRASER, Wm., Cedar St., Dobbs Ferry, N. Y.
GARAGE Equipment Co., 10 31st St., Milwaukee, Wis.
GARFORD Co. (The), Elyria, O. (see page 5).
GLOBE Mach. & Stamping Co., Cleveland, O.
GOULD, James, Co., Albany, N. Y.
MALTBY Automobile & Mfg. Co., Brooklyn, N. Y.
N. J. Automobile Co., 226-230 Halsey St., Newark, N. J.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
READING Automobile Co., Reading, Pa.
ROYAL Equipment Co., 165 Housatonic St., Bridgeport, Conn.
SMITH CO., A. O., Milwaukee, Wis.
TIVY Cycle Co., Williamsport, Pa.
U. S. Aluminum Castings Co. (The), Hamilton and Vandalia Aves., Cincinnati, O.
WHIPPLE, R. W., Binghamton, N. Y.
YOUSE, E. S., Reading, Pa.

BRAKE BANDS

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
ROSSENDALE-Reddeway Belting & Hose Co., Newark, N. J.

BRAKE DRUMS

CROSBY Co. (The), Buffalo, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass.

BRAKE LOCKS

GARAGE Equipment Co., 10 31st St., Milwaukee, Wis.
READING Automobile Co. (The), 6 S. 5th St., Reading, Pa.
TURNER Brass Co., Franklin & Michigan Sts., Chicago, Ill.

BRASS AND COPPER (Sheet and Rod)

ANSONIA Brass & Copper Co., New York, N. Y.
BRIDGEPORT Brass Co., New York, N. Y.
BROOKLYN Brass & Copper Co., Brooklyn, N. Y.
COE Brass Mfg. Co., Torrington, Conn.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
HENDRICKS BROS., New York, N. Y.
HOLMES, Booth & Haydens Co., Waterbury, Conn.
HUSSEY & Co., C. G., Pittsburg, Pa.
MANHATTAN Brass Co., New York, N. Y.
NEW HAVEN Copper Co., Seymour, Conn.
PLUME & Atwood Mfg. Co., Waterbury, Ct.
RANDOLPH-Clowes Co., Rome, N. Y.
ROME Brass & Copper Co., Rome, N. Y.
SCOVILL Mfg. Co., Waterbury, Conn.
SEYMOUR Mfg. Co., Seymour, Conn.
TAUNTON-New Bedford Copper Co., Taunton, Mass.
WATERBURY Brass Co., Waterbury, Conn.

BRAZIERS

A-Z Co. (The), 462 11th Ave., N. Y. City.
BUFFALO Dental Mfg. Co., 587-589 Main St., Buffalo, N. Y.
CLAYTON & Lambert Mfg. Co., Detroit, Mich.
ENTERPRISE Machine Works, 308 N. 5th St., Richmond, Va.
INVINCIBLE Mfg. Co., Wilmington, Ill.
GARVIN Machine Co., Spring and Varick Sts., N. Y. City.
NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.
REECE, J. A., 716 A St., N. W., Washington, D. C.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
WHITE Mfg. Co., 72 So. Canal St., Chicago, Ill.

BRAZING COMPOUND

A. & J. Mfg. Co., 13 South Canal St., Chicago, Ill.
CORTLAND Specialty Co., 176 Railroad St., Cortland, N. Y.
DINGEE, M. H. Lynchburg, Va.
DIXON, Jos., Crucible Co., Jersey City, N. J.
FRANKLIN Moore Co., Winsted, Conn.
HOPKINS Bros.-Springer Co., Des Moines, Ia.
KREMBS & Co., 55 Waldo Pl., Chicago, Ill.
NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.
STANDARD Brazing Co., 88 Broad St., Boston, Mass.
STANDARD Carriage Lamp Co., 43 So. Canal St., Chicago.
WATERBURY Brass Co., Waterbury, Conn.

BRUSHES (Carbon)

NATIONAL Carbon Co., Cleveland, O. (see page 13).

BUCKETS (Collapsible)

ABERCROMBIE & Fitch, 316 B'way, N. Y. City.
BOYLE & Co., John, 200 Fulton St., New York City.
DUPLEX Folding Pail Co., 114 East 14th St., New York City.

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GOODYEAR Rubber Co., New York, N. Y.
GUTTA Percha and Rubber Mfg. Co., New York, N. Y.
HODGMAN Rubber Co., New York, N. Y.
KNOWLES, C. S., 7 Arch St., Boston, Mass.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 45.)
RUBBER Appliance Co., Springfield, Mass.
RUE Mfg. Co., 215 Race St., Philadelphia, Pa.
WATERBURY Brass Co., Waterbury, Conn.

BUMPERS

CALUMET Tire & Rubber Co., 43d and Wabonsia Aves., Chicago, Ill.
HARTFORD Rubber Wks. Co., Hartford, Conn.

BURNERS (Gasoline)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FORG, Peter, Park St., Somerville, Mass.
KELLY Handle Bar Co., Cleveland, O.
LOCKE Regulator Co., Salem, Mass.
NATIONAL Oil Burner & Equipment Co., St., Louis, Mo.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
TONKIN Boiler Co., Oswego, N. Y.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
UNITED Motor & Vehicle Co., 150 Nassau St., N. Y. City.
WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Kerosene)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BARRETT, Geo. J., 143 Queen St., Fredericton, N. B.
BOSS Steam Car Co., Reading, Pa.
CHICAGO Auto. Mfg. Co., 4120 State St., Chicago, Ill.
FRANTZ Mfg. Co., Cherryville, Pa.
GENEVA Auto. & Mfg. Co., Geneva, O.
GILBERT Co., P. H., 514 Adams Ave., Scranton, Pa.
JENKINS Automobile Co., Washington, D. C.
KEROSENE Power Co. of N. Y., 121 East 13th St., N. Y. City.
LIQUID Fuel Engineering Co., Bridgeport, Conn.
LYNN Auto. Co., 274 Broad St., Lynn, Mass.
NATIONAL Oil Burner & Equipment Co., St. Louis, Mo.
NATIONAL Oil Heating Co., Melrose, Mass.
NOVELTY Appliance Co., 369 Broadway, New York, N. Y.
OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.
STEAM Carriage Boiler Co., 119 West First St., Oswego, N. Y.
SUNSET Automobile Co., San Francisco, Cal.
TAUNTON Motor Carriage Co., Taunton, Mass.
TONKIN Boiler Co., Oswego, N. Y.
WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Gas Lamp)

ACETYLENE Gas Ill. Co., 105 Walker St., New York, N. Y. (Bruleurs) (see page 89).
AMERICAN Lava Co., Chattanooga, Tenn.
CARROLL, J. B., 136 Lake St., Chicago, Ill.
KIRCHBERGER & Co., 50 Warren St., New York City.
STAR Acetylene Gas Burner Co., Chattanooga, Tenn.
STATE Line Talc. Co., Chattanooga, Tenn.
STEWART, D. M. Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.
SUNLIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

CANOPIES (See Tops)

CANS (See Oil Cans)

CANS (Waste)

DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass. (see page 43).

CAPS (Auto)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
DEMMERLE & Co., 248 W. 23d St., New York City.
DETROIT Cap Mfg. Co., 11-17 Woodbridge St., W., Detroit, Mich. (see page opposite).
DETROIT Motor Car Supply Co., 1256 Jefferson Ave., Detroit, Mich.
DINNER, Isaac H. Co., 48-50 Summer St., Boston, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
KIBBE, C. S., Batavia, N. Y.
LASKY & Levy, 20 and 22 Waverly Place, New York City.
LILLEY Co., M. C., Columbus, O.
MAXFIELD & Co., Glen C., 170 E. Madison St., Chicago, Ill.
MORAWETZ Co. (The), Milwaukee, Wis.
PONTIAC Knitting Co., Pontiac, Mich.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
REVILLON Bros., 15 W. 28th St., New York City.
SAKS & Co., Broadway, 33d to 34th St., New York City.
SCANDINAVIAN Fur & Leather Co., New York, N. Y.
SHAW, Ora D., 109 Kingston St., Boston, Mass.
SPRINGFIELD Hat & Cap Co., 27-35 Taylor St., Springfield, Mass.
WANCKEL, Manfred, 640 Madison Ave., New York City.

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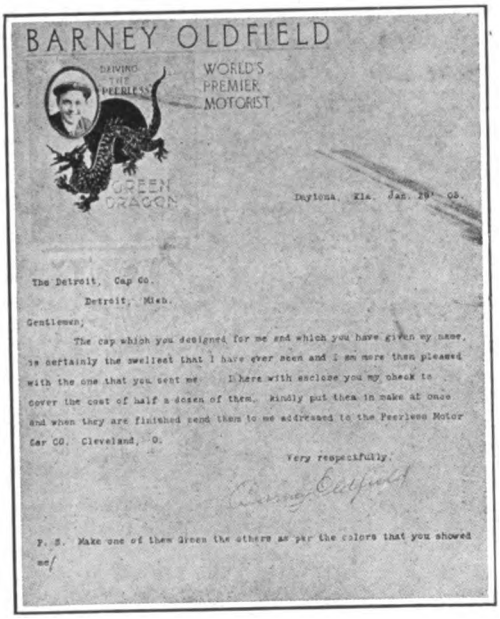

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Barney Oldfield

P. S. Make one of them Green the others as per the colors that you showed me.

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11-13-15-17 Woodbridge St. W.
DETROIT, MICHIGAN

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CARBIDE

ACETYLENE Gas Ill. Co., 105 Walker St., New York (see page 89).

AMERICAN Carbolite Co., Constantine, Mich.

UNION Carbide Co., Michigan Ave. and Adams St., Chicago, Ill.

CARBURETERS

A. & J. Mfg. Co., 13 South Canal St., Chicago, Ill.

ASTER Co., 1591 Broadway, N. Y. City.

AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.

AUTO Brass & Aluminum Co., Flint, Mich.

AXIOM Carbureter Mfg. Co. (The), 106 E. 28th St., N. Y. City.

BATES Automobile Co., Lansing, Mich.

BOWEN Mfg. Co., 92 Baynes St., Buffalo, N. Y.

BRADFORD Motor Works, Bradford, Pa.

BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.

BROOKLYN Coil & Carbureter Co., 77-79 Adams St., Brooklyn, N. Y.

BUCKEYE Motor Co., 201 South High St., Columbus, O.

BYRNE, Kingston & Co., Kokomo, Ind.

CLARK Carbureter Co., 36 Viaduct, Cleveland, O.

CLEMICK-Hirsch Co., Milwaukee, Wis.

CONTINENTAL Engine Co., 277 Dearborn St., Chicago, Ill.

CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.

CULVER Novelty Co., Culver, Ind.

CURTIS Mfg. Co., G. H. Hammondsport, N. Y.

DALEY, Walter A., 306 Chicago Opera House Building, Chicago, Ill.

DEARBORN, F. A., Old South Bldg., Boston, Mass.

DES MOINES Auto. Co., 409-11 9th St., Des Moines, Ia.

ESSEX Brass Co., G. B., Detroit, Mich.

FAIRMONT Auto. Co., Diamond and Van Pelt Sts., Philadelphia, Pa.

FAST, Otto, Greenfield and 25th Aves., Milwaukee, Wis.

GARLLUS, B., 108 N. Dickinson St., Madison, Wis.

GIANT Motor Co., Newark, N. J. (see page 39).

GODDU Bros., Winchester, Mass.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).

HERZ & Co., Elm and Marion Sts., New York City (see page 39).

HOLLEY Bros., 661-673 Beaubein St., Detroit, Mich.

ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.

IMPERIAL Brass Mfg. Co., 257 So. Jefferson St., Chicago, Ill. (see page 63).

JOHNSTON Mach. Co., 86 High St., Woodbury, N. J.

KAESTNER Mfg. Co., Chas., South Bend, Ind.

KAUFMAN, Chas., Oshkosh, Wis.

LAKEVIEW Auto. Co., 1045 Sheffield Ave., Chicago, Ill.

LAMSON Mach. Co., Abington, Mass.

LEE Mfg. Co. (The), South Park, Port Huron, Mich.

LIPMAN, Carl E., Beloit, Wis.

LOCKE Regulator Co., Salem, Mass.

LUNKENHEIMER Co. (The), 213-223 E. 8th St., Cincinnati, O.

LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.

MAXWELL & Fitch Co. (The), 218 So. Washington St., Rome, N. Y.

MAYO Damper Co., 355 Walnut St., Pottstown, Pa.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page—).

MUNCIE Auto Parts Co., Muncie, Ind.

MURRAY, W. B., 1253 Milwaukee Ave., Chicago, Ill.

NORTH Chicago Mach. Co., North Chicago, Ill.

ORIENT Mfg. Co., 320 Franklin St., Buffalo, N. Y.

POWER, J. J., 653 E. Main St., Madison, Wis.

RUBAY, Leon, 136 W. 38th St., N. Y. City (Importer).

SARIS, J. H., Beloit, Wis.

SHERWOOD Mfg. Co., Buffalo, N. Y.

SINTZ, Guy L., Fulton and Front Sts., Grand Rapids, Mich.

SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page opposite).

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

VAN DUZEN Gaso. & Gas Engine Co., State and Mill Sts., Cincinnati, O.

WESTERN Auto. Supply Co., 235 Virginia St., Milwaukee, Wis.

WESTERN Motor Co., Logansport, Ind.

WHEELER & Schebler, Indianapolis, Ind.

XARDELL, J. A. & C. A., Genesee, St., Utica, N. Y.

CARRIAGE HARDWARE

BLAKESLEE Forging Co., Plantsville, Conn.

CLEVELAND Hardware Co. (The), 1300 Lake St., Cleveland, O.

COLUMBUS Bolt Works, 162 W. Randolph St., Columbus, O.

CORTLAND Carriage Goods Co., Cortland, N. Y.

CORTLAND Forging Co., Cortland, N. Y.

COWLES, C. & Co., New Haven, Conn.

DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 37).

EBERHARD Mfg. Co., Cleveland, O.

ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.

FRANKLIN Moore Co. (The), Winsted, Conn.

METAL Stamping Co., 468-472 W. B'way, N. Y. City.

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 45).

NEIDER Co., F. A. (The), Augusta, Ky. (see page 37).

NEW Britain Hardware Mfg. Co., New Britain, Conn.

ROEHM & Davison, Woodbridge & Wayne Sts., Detroit, Mich.

SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.

WING Co., Chas., Amesbury, Mass.

CASES (Engine, Gear and Chain)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).

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DETROIT Auto. Top Co., Detroit, Mich.
REEDY, W. E., Lima, O.
WILEY & Son Co., Wm. H., 1217 Main St., Hartford, Conn.

CASTINGS (Brass, Bronze, Aluminum and Copper)

ACORN Brass Mfg. Co., Chicago, Ill.
ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 31).
ALUMINUM Foundry Co., Manitowoc, Wis.
AMERICAN Brass Fdry. Co., Hyde Park, Mass.
AMERICAN Fdry. & Mach. Co., Hanover, Pa.
AMERICAN Pin Co., Waterbury, Conn.
ATLAS Brass Foundry, 70 Frost St., Brooklyn, N. Y.
AUTO Brass & Aluminum Co., Beach & Mill Sts., Flint, Mich.
BELL & Fyfe Foundry Co., Kent Ave. & So. 11th Ct., Brooklyn, N. Y.
BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.
BUFFALO Combination Foundry Co., 135 Herman St., Buffalo, N. Y.
BURLINGTON Brass Co., Burlington, Wis.
CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.
CHICAGO Hardware Fdry. Co., North Chicago, Ill.
CLARK, John W., Albany, N. Y.
CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.
CRAMP & Sons Ship & Engine Building Co., Wm., Philadelphia, Pa.
CRESCENT Brass Mfg. Co., 7th, Spruce and Benjamin Sts., Reading, Pa.
DEVLIN, Thos. & Co., 3d St. & Lehigh Ave., Philadelphia, Pa.
ELKHART Brass Mfg. Co., Prospect St., Elkhart, Ind.
ELM CITY Brass Co., New Haven, Conn.
ENTERPRISE Foundry Co., Detroit, Mich.
EUREKA Tempered Copper Wks., Northeast, Pa.
FOREST City Brass Wks., Cleveland, O.
GAYLORD Co., F. L., Ansonia, Conn.
GERSON-Carey Co., Lansing, Mich.
GRAHAM, James & Co., 293 Wooster St., New Haven, Conn.
GRISWOLD Mfg. Co., Erie, Pa.
HENDRYX & Co., Andrew B., New Haven, Conn.
HI-SPEED Bronze Co., 2235 Vine St., Philadelphia, Pa.
HOFELLER Brass Fdry. Co., 100 Terrace, Buffalo, N. Y.
HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 35).
HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.
IMPERIAL Brass Mfg. Co. (The), 251 So. Jefferson St., Chicago, Ill. (see page 63).
JEFFERSON Brass Foundry, Brooklyn, N. Y.
KEYSTONE Brass Fdry. Co., 188 Berks St., Philadelphia, Pa.
KOKOMO Brass Wks., 351 N. Smith St., Kokomo, Ind.
LANGSENKAMP Bros., 136-142 E. Georgia St., Indianapolis, Ind.
LIBERTY Bell Co., Bristol, Conn.
LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 19).
MANHATTAN Brass Co., New York, N. Y.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
NATIONAL Car Wheel Co., Sayre, Pa.
NATIONAL Car Wheel Co., Rochester, N. Y.
NATIONAL Cycle Mfg. Co., Bay City, Mich.
NEW JERSEY Aluminum Co., 19th and Springfield Ave., Newark, N. J.
NOLTE Brass Co., Springfield, O.
NORWALK Brass Co., Norwalk, Conn.
OBERDORFER Brass Co., M. L., 804 East Water St., Syracuse, N. Y.
OHIO Brass Co., Mansfield, O.
PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.
PIONEER Brass Works, Indianapolis, Ind.
PITTSBURG Brass Mfg. Co., Pittsburg, Pa.
PITTSBURG Reduction Co., Pittsburg, Pa.
PROVIDENCE Brass Foundry & Machine Co., Providence, R. I.
RACINE Brass & Iron Co., Racine, Wis.
REEVES & Son, Paul S., 1415 Catherine St., Philadelphia, Pa.
ROGERS, C. E., Boston, Mass.
ROWELL Co., The W. G., 353 Water St., Bridgeport, Conn.
RYAN & Co., J. J., 68-74 W. Monroe St., Chicago, Ill.
SHERWOOD Brass Works, 1167 Jefferson Ave., Detroit, Mich.
SPENCER'S Sons, I. S., Guilford, Conn.
STANDARD Foundry Co., Hartford, Conn.
STOVER Mfg. Co., Freeport, Ill.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page opposite).
TURNER Brass Wks., Franklin & Michigan Sts., Chicago, Ill.
UNIQUE Metal Co., 89-91 Niagara St., Buffalo, N. Y.
U. S. Aluminum Castings Co., Hamilton & Vandalia Aves., Cincinnati, O.
U. S. Bronze Co., 149 Columbus St., Cleveland, O.
VINCENT Valve Co., Sandusky, O.
WALTHAM Brass & Aluminum Co., Waltham, Mass.
WESTERN Brass Mfg. Co., 21st and Rockwell St., Chicago, Ill.
WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

CASTINGS (Gray Iron)

ACME Fdry. Co., Sweeney St., Cleveland, O.
AMERICAN Fdry. & Mach. Co., Hanover, Pa.
BARCUS & Co., Geo., Wabash, Ind.
BARLOW, Arthur E., Newark, N. J.
BELLE CITY Mfg. Co., Racine Junction, Wis.
BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.
BUFFALO Foundry Co., Buffalo, N. Y.
CAPITOL Foundry Co., Hartford, Conn.
CHICAGO Hardware Fdry. Co., North Chicago, Ill.
CRAMP & Sons Ship. & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DAVENPORT Fdry. & Mach. Co., Davenport, Ia.
ENTERPRISE Fdry. Co., Detroit, Mich.
ERIE Fdry. Co., Erie, Pa.
FULTON Fdry. & Mach. Wks., 25 Furman St., Brooklyn, N. Y.
GREY Iron Castings Co., Mt. Joy, Pa.
HAYES Foundry Co., Lynn, Mass.
HOFFMAN Hinge & Fdry. Co., Cleveland, O.
HOLBROOK-ARMSTRONG Iron Co., Racine, Wis.

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of the lightest and strongest alloys possible and

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of Special Mixture producing great strength and wearing Quality.

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SYRACUSE, N.Y.

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HOPSON & Chapin Mfg. Co., New London, Conn.
INTER-State Foundry Co., Cleveland, O.
LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page 21).
MANUFACTURERS' Fdry. Co., Waterbury, Conn.
MARINETTE Gas Eng. Co., Chicago Heights, Ill.
MEEKER Fdry. Co., 95 Clay St., Newark, N. J.
NATIONAL Car Wheel Co., Cleveland, O.
NATIONAL Car Wheel Co., Sayre, Pa.
PALMERS & De Mooy Fdry. Co., Cleveland, Ohio.
RACINE Brass & Iron Co., Racine, Wis.
SESSIONS Foundry Co., Bristol, Conn.
SPENCER'S Sons, I. S., Guilford, Conn.
STANDARD Fdry. & Mfg. Co., Cleveland, O.
STOVER Mfg. Co., Freeport, Ill.
STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.
TARRANT Foundry Co., Chicago, Ill.
UTICA Foundry Co., Utica, N. Y.
UTICA Steam Eng. & Boiler Wks., Utica, N. Y.
WILCOX, Crittenden & Co., Middletown, Conn.

CASTINGS (Malleable Iron)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.
ARCADE Malleable Iron Co., Worcester, Mass.
BARLOW, Arthur E., Newark, N. J.
BEAVER Dam Malleable Iron Co., Beaver Dam, Wis.
BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.
BUHL Malleable Iron Co., Detroit, Mich.
COLUMBUS Malleable Iron Co., Columbus, O.
DAYTON Malleable Iron Co., Dayton, O.
DEVLIN & Co., Thomas, 3d St. and Lehigh Ave., Philadelphia, Pa.
EBERHARD Mfg. Co. (The), Cleveland, O.
FLAGG & Co., Stanley G., Philadelphia, Pa.
FRAZER & Jones Co., Syracuse, N. Y.
HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.
ILLINOIS Malleable Iron Co., Chicago, Ill.
MALLEABLE Iron Fittings Co., Branford, Conn.
MEEKER Fdry. Co., 95 Clay St., Newark, N. J.
MINNESOTA Malleable Iron Co., St. Paul, Minn.
MOLINE Malleable Iron Co., St. Charles, Ill.
NATIONAL Malleable Castings Co., Cleveland, O.
NAUGATUCK Malleable Iron Co., Naugatuck, Conn.
NORWAY Iron & Steel Co., York, Pa.
ORISKANY Malleable Iron Co., Oriskany, N. Y.
OSHKOSH Malleable Iron Co., Oshkosh, Wis.
PORT HURON Engine & Thresher Co., Port Huron, Mich.
RACINE Malleable & Wrought Iron Co., Racine, Wis.
RHODE ISLAND Malleable Iron Wks., Hills Grove, R. I.
STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.
SYRACUSE Malleable Iron Wks., Syracuse, N. Y.
TRENTON Malleable Iron Co., Trenton, N. J.
WILMINGTON Malleable Iron Co., Wilmington, Del.

CASTINGS (Steel)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.
ADRIAN Steel Casting Co., Adrian, Mich.
AMERICAN Steel Castings Co., Chester, Pa.
ARCADE Malleable Iron Co., Worcester, Mass.
ATHA Steel Co., Newark, N. J.
BETHLEHEM Steel Co., So. Bethlehem, Pa.
CARPENTER Steel Co. (The), Reading, Pa.
CHESTER Steel Castings Co., Chester, Pa.
CHROME Steel Works, Brooklyn, N. Y.
CRUCIBLE Steel Castings Co., Milwaukee, Wis.
DEVLIN & Co., Thomas, 3d St., and Lehigh Ave., Philadelphia, Pa.
DUTCHER Co., J. A. & P. E., Milwaukee, Wis.
FERRO Carbon Castings Co., Frankford, Philadelphia, Pa.
FLAGG & Co., Stanley G., Philadelphia, Pa.
FRAZER & Jones Co., Syracuse, N. Y.
HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.
JOHNSON & Co., Isaac G., Spuyten Duyvil, N. Y.
JOHNSTON, Geo. H., P. O. Box 12, Sparrows Point, Md.
KING & Andrews Co., Chicago, Ill.
LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page 21).
LOGAN Mfg. Co., Phoenixville, Pa.
MACKINTOSH, Hemphill & Co., Pittsburg, Pa.
MASSACHUSETTS Steel Casting Co., West Everett, Mass.
MESTA Machine Co., Pittsburg, Pa.
MILWAUKEE Steel Fdry. Co., Milwaukee, Wis.
N. E. Steel Castings Co., Hdye Park, Mass.
N. E. STEEL Castings Co., 26 Cortlandt St., N. Y. City.
NEWARK Iron & Steel Co., Newark, O.
NEW JERSEY Steel Co., Rahway, N. J.
NORWAY Iron & Steel Co., York, Pa.
OTIS Steel Co., Cleveland, O.
PROVIDENCE Steel Castings Co., Providence, R. I.
RIVERSIDE Foundry, The, 451-473 Riverside Ave., Newark, N. J.
SMITH Steel Castings Co., Geo. H., 500 Clinton St., Milwaukee, Wis.
TAYLOR Iron & Steel Co., High Bridge, N. Y.
TOBIN-Gerlinger Steel Castings Co., West Allis, Wis.
TOOL Steel Castings Co., 90 Canal St., Boston, Mass.
UNIFORM Steel Co., Newark, N. J.
WESTERN Malleable Steel Co., River and Clark Sts., Detroit, Mich.
WHITLEY Steel Co., Muncie, Ind.
WILMINGTON Malleable Iron Co., Wilmington, Del.
WORCESTER Steel Foundry Co., Worcester, Mass.

CEMENT (Tire)

AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.
ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

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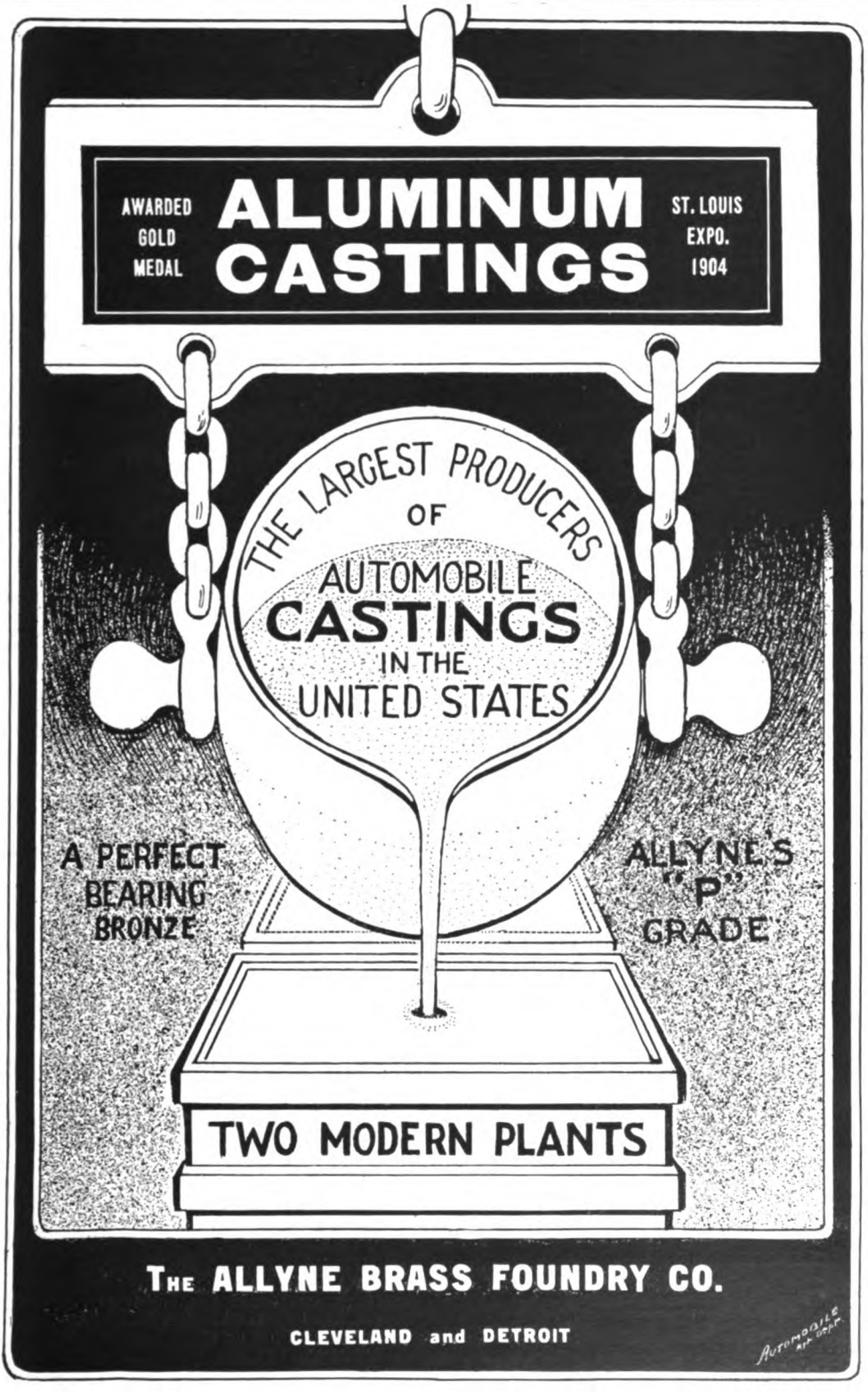

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BUFFALO Specialty Co., Buffalo, N. Y.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).

G. A. HOSMER Co., 376 Ellicott St., Buffalo, N. Y.

MAGNET Cement & Dressing Co., 878 No. 48th St., Philadelphia, Pa.

NATIONAL Cement & Rubber Mfg. Co., Toledo, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 45).

CHAINS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

DIAMOND Chain & Mfg. Co., Indianapolis, Ind.

DUCKWORTH Chain & Mfg. Co., Springfield, Mass.

LEFEVRE Arms Co., Syracuse, N. Y.

LINK Belt Engineering Co., Nicetown, Pa.

MORSE Chain Co., Trumansburg, N. Y.

WHITNEY Mfg. Co. (The), Hartford, Conn.

CHANNELS

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

GARFORD Co. (The), Elyria, O. (see page 5).

STANDARD Welding Co., Cleveland, O.

WESTON-Mott Co., Utica, N. Y. (see page 15).

CHARGING EQUIPMENT (Electrical)

ADVANCE Mfg. Co., Hamilton, O.

BAKER Motor Vehicle Co., Cleveland, O.

BRONSON & Davis, 463 Fairmount Ave., Blue Island, Ill.

BULLOCK Electric Mfg. Co., Cincinnati, O.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

GENERAL Elec. Co., Schenectady, N. Y.

GENERAL Power Co. (The), 100 William St., N. Y. City.

M'MULLIN Motive Power & Construction Co., 472 Carroll Ave., Chicago, Ill.

MERRIAM-Abbott Co., 60 E. Prospect St., Cleveland, O.

PIERCE-CROUCH Eng. Co., Penn Ave., New Brighton, Pa.

RICHARDSON Engineering Co., 36 Pearl St., Hartford, Conn.

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

WAGNER Electrical Mfg. Co., 2017 Locust St., St. Louis, Mo.

WESTINGHOUSE Electric & Mfg. Co., Pittsburg, Pa.

CLEVICES (See Screw Mach. Products)

CLOCKS (Auto.)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

CHELSEA Clock Co., 16 State St., Boston, Mass. (Auto and Motor Boat) (see page opposite).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).

LEVY, Manasseh, 182 Broadway, New York

McGIEHAN Odometer & Mfg. Co., 137 W. 32d St., New York.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).

THORN Mfg. Co., 5 Front St., Salem, Mass.

WILSON Auto. Clock Co., 935 Arch St., Philadelphia, Pa.

WHEELOCK Motor Car Clock Co., Tremont Bldg., Boston, Mass.

CLOTHING (Auto.)

AMERICAN Buffalo Robe Co., Buffalo, N. Y.

BISHOP & Co., The J. H., Wyandotte, Mich.

BRANN, E., 1225 Park Ave., N. Y. City.

BROOKS Bros., 22d St. & B'way, N. Y. City.

CROSBY Frisian Fur Co., 116 Mill St., Rochester, N. Y.

DAVIS Robe Co., The, Inc., 1307 Champlain Bldg., Chicago.

DEMMERLE & Co., 248 W. 23d St., N. Y. City.

DOUGHERTY & Colt Mfg. Co., 105 W. Bridge St., Columbus, O.

FULLER & Sullivan, 87 Summer St., Boston, Mass.

GILBERT Mfg. Co., New Haven, Conn. (see page 35).

GILMAN, J. C. & Co., 107 Albany St., Boston, Mass.

GUNTHER'S Sons, G. C., 184 5th Ave., N. Y. City.

HANSEN Mfg. Co., O. C., 356 E. Water St., Milwaukee, Wis.

HODGMAN Rubber Co., 806 Broadway, N. Y. City.

JOHNSON Co., H. S., Peabody, Mass.

LADIES' Supply Co., 3118-3120 Forest Ave., Chicago, Ill.

LILLEY, M. C., & Co., Columbus, O.

MACULLAR-Parker Co., Boston, Mass.

MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.

MILFORD Auto. Coat Co. (The), Milford, Mass.

MILLER, Chas. E., 97 Reade St., N. Y. City (Dealer and Jobber).

MOORE-Smith Co., Boston, Mass.

MORAWETZ Co. (The), Milwaukee, Wis.

N. Y. Leather Coat Co., 207 Greene St., New York.

OUR OWN Mfg. Co., New York.

PEERLESS Clothing Co., Boston, Mass.

ROGERS, Peet & Co., N. Y. City.

RUSZITS, John, Fur Co., 73-77 Mercer St., N. Y. City.

SAKS & Co., 34th St. & B'way, N. Y. City.

SCANDINAVIAN Fur & Leather Co., 16 W. 33rd St., New York, N. Y.

SCOTT-Muffler Co. (The), Portsmouth, O. (see page 65).

SHUMAN, A., & Co., Boston, Mass.

SMITH, Gray & Co., N. Y. City.

SMITH, Crary & Davidge, 174 Water St., Binghamton, N. Y.

SPEAR-Martin Fur Co., Burlington, Vt.

SPRAGUE, F. H. Co., Orange, Mass.

TUCKER, J. A., 111 Summer St., Boston, Mass.

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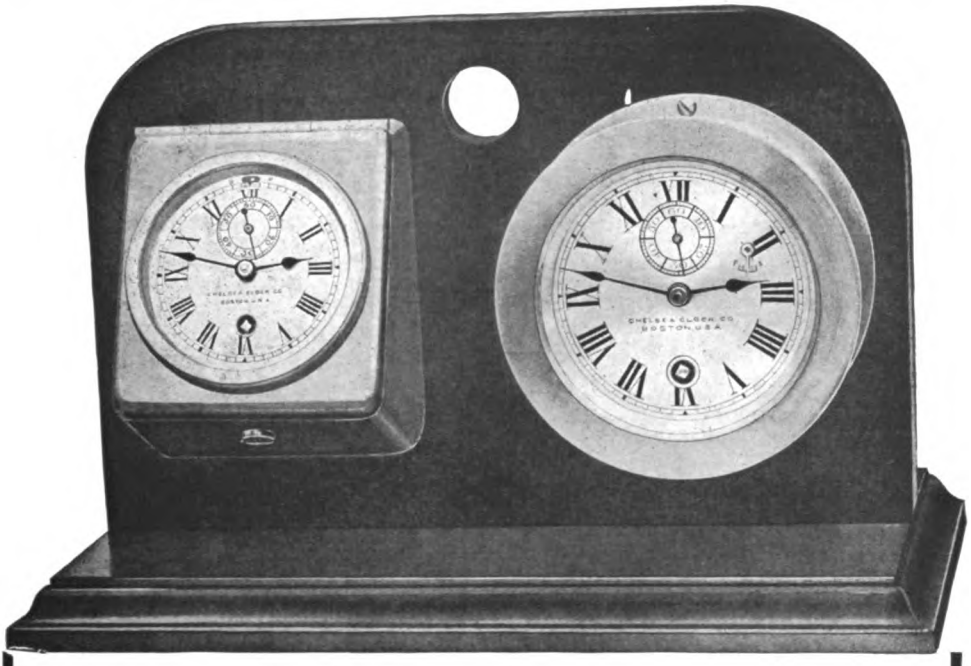

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8-DAY—HIGH GRADE—YOU WANT THE BEST?

ASK FOR

THE "CHELSEA" AUTO CLOCK

(TRADE MARK)

THE above illustration shows the $2\frac{3}{4}$ inch "SPECIAL" and the $3\frac{1}{2}$ inch "MOTOR" Clock. All sizes stated are "Dial" sizes. Also two other AUTO CLOCKS, very high grade, and quite similar in appearance to the above illustration of the $3\frac{1}{2}$ inch Motor Clock, viz:—

$2\frac{3}{4}$ inch, $26. $3\frac{1}{2}$ inch, $28.

All have polished Cast Brass Duplex (patent applied for) Screw Bezel Cases (the most thoroughly water-proof case on the market), and the $2\frac{3}{4}$ inch "Special" Auto Clock, also is in an outer (locked) case showing dial on an angle of about 35 degrees, and when not in use on car may be removed from its outer (locked) case and makes an attractive 8-day reliable clock for use on desks, mantels, bureaus, etc., etc., a feature that will be appreciated by tourists.

The $3\frac{1}{2}$ inch MOTOR CLOCK is almost identical in size and appearance with the $3\frac{1}{2}$ inch Auto Clock, but is not quite as high geared; it is the same clock as we sell for the hard use on locomotives, steam fire engines, etc., etc. ESPECIALLY good for use on MOTOR BOATS.

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WESTERN Robe Co., Detroit, Mich.

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BLEVNEY, John C., 216 High St., Newark, N. J.
CARLYLE & Johnson Machine Co., Hartford, Conn.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
GARFORD Co. (The), Elyria, O. (see page 5).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
MUNCIE Auto Parts Co., Muncie, Ind.
SMITH Co., A. O., Milwaukee, Wis.
SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page 27).
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
UNIVERSAL Clutch Co., 226 S. 11th St., Philadelphia, Pa.

COLUMNS (See Water Alarms & Columns)

COMMUTATORS (See Controllers, Electric)

COMPRESSORS (Air)

CHICAGO Pneumatic Tool Co., 1010 Fisher Bldg., Chicago, Ill.
CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.
CROWELL, Gilmer, 292-296 Graham St., Brooklyn, N. Y.
HASTINGS & Anderson, Chicago, Ill.
HUMPHREYS Mfg. Co., Mansfield, Ohio.
MARTIN & Anson Co., 2232 Cottage Grove Ave., Chicago, Ill.
NEW Era Gas Engine Co., 9 Dale Ave., Dayton, O.
PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see opposite page).

CONDENSERS

A-Z Co. (The), 462 11th Ave., N. Y. City.
CHICAGO Auto. Mfg. Co., 4230 State St., Chicago, Ill.
NATIONAL Oil Burner & Equipment Co., Holland Bldg., St. Louis, Mo.
WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 69).

CONNECTING RODS

ANDERSON, W. T. & Sons, Inc., Detroit, Mich. (see page 15).
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see opposite page).
STANDARD Connecting Rod Co., Beaver Falls, Pa.

CONNECTORS, Wire (See Wire Terminals)

CONTROLLERS (Electric)

ELECTRIC Vehicle Equipment Co., 20th St. & Montgomery Ave., Philadelphia, Pa.
ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.
GENERAL Electric Co., Schenectady, N. Y.
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
LAMB & Co., Kent and Lyon Sts., Grand Rapids, Mich.
LINCOLN Electric Co., Cleveland, O.
WESTINGHOUSE Elec. and Mfg. Co., Pittsburg, Pa.

COOLERS (See Radiators)

COUPLINGS (Brass) (See Also Fittings—Pipe)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
PENINSULAR Milled Screw Co., Detroit, Mich.

COVERS (Auto)

BURGIN Bros., Springfield, Mass.
GILBERT Mfg. Co., New Haven, Conn. (see page 35).
QUINBY, J. M. Co., 1534 B'way, N. Y. City.
VEHICLE Apron and Hood Co., Columbus, Ohio.
WILEY & Son Co., Wm. H., Hartford, Conn.

CRANK SHAFTS

ANDERSON, W. T. & Sons, Inc., Detroit, Mich. (see page 15).
BILLINGS & Spencer Co., Hartford, Conn.
BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.
GILL & Sons, P. H., Forge & Mach. Wks., Brooklyn, N. Y.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
LELAND, W. H., & Co., 6 Sheridan St., Worcester, Mass.
STANDARD Connecting Rod Co., Beaver Falls, Pa.
STANDARD Welding Co., Cleveland, O.
TINDEL-MORRIS Co., Eddystone, Pa.
WYMAN & Gordon, 30 Bradley St., Worcester, Mass.

CRUCIBLES

BRIDGEPORT Crucible Co., Bridgeport, Conn.
DIXON, Jos., Crucible Co., Jersey City, N. J.
OBERMAYER Co., S., (The), 641 Evans St., Cincinnati, O.
WISCONSIN Graphite Co., Allegheny, Pa.

CUPS (Ball)

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WORCESTER Pressed Steel Co., Worcester, Mass.

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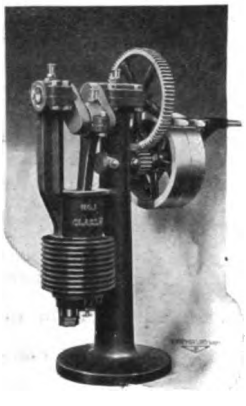

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HARRIS, E. T., 513-515 15th St., Chicago, Ill.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
HOUGHTON & Buxton, Worcester, Mass.
MATHEWS, H. A., Mfg. Co., Seymour, Conn.
NEW Britain Hardware Mfg. Co. (The), New Britain, Conn.
PENINSULAR Milled Screw Co., Detroit, Mich.
WESTERN Automatic Machine Screw Co. (The), Elyria, O.

CURTAINS (Storm)

CURTAIN Supply Co., 85-93 Ohio St., Chicago, Ill.
ENEAS, A. G., 50 Congress St., Boston, Mass.
IDEAL Storm Curtain Co., McPherson, Kas.
SPRAGUE Umbrella Co. (The), Norwolk, O.

CURTAIN FASTENERS

SMITH & Co., Jos. N., Detroit, Mich.
NEIDER Co., F. A. (The), Augusta, Ky. (see page opposite).
ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.
WING Co., Charles, Amesbury, Mass.

CUSHIONS

DETROIT Carriage Co., Detroit, Mich.
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
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HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.
INITIAL Toe Pad Co., Three Rivers, Mich.
KELLEY, E., & Co., 509 Main St., Worcester, Mass.
LARRIMORE Buggy Top Co., Baltimore, Md.
MECHANICAL Fabric Co., Providence, R. I.
NEWTON, W. H. & Son, 127 Elm St., Cortland, N. Y.
PELINKA, Frank, 409 Blue Island Ave., Chicago, Ill.
PNEUMATIC Mattress & Cushion Co., 5 Fourth St., N. Y. City.
SPRINGFIELD Auto. Top & Upholstering Co., Springfield, Mass.

CYCLOMETERS (See Indicators—Speed and Distance)

DASHES AND FENDERS

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AMERICAN Veneer Co., Kenilworth, N. J.
BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BENNETT Mfg. Co., Hunt, N. Y.
BRISCOE Mfg. Co., 1431 Woodward Ave., Detroit, Mich. (see page 73).
COLE & Woop, New York City.
DANN Bros. Co., New Haven, Conn.
DETROIT Auto Specialty Co., 12-14 Sherman St., Detroit. Mich. (see page 75).
DETROIT Auto. Top Co., Detroit, Mich.
DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass. (see page 43).
EVERITT, B. F., 65 E. Fort St., Detroit, Mich.
HALL, E. H., Co. (The), Inc., 13 Elm St., Rochester, N. Y.
HAYES Mfg. Co. (The), 773 Bellevue Ave., Detroit, Mich.
INDIANAPOLIS Dash Co., Indianapolis, Ind.
INITIAL Toe Pad Co., Three Rivers, Mich.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 15).
KINSEY Mfg. Co., Dayton, O. (see back cover).
LOCKE & Co., 218-220 West 84th St., New York.
M'KINNON Dash Co., Buffalo, N. Y.
MOORE & Munger Co., 602 W. 52d St., New York,
NEW York Dash & Fender Co., 516-520 W. 36th St., N. Y. City.
PETERS & Herron Dash Co. (The), Columbus, O.
QUINBY & Co., J. M., Newark, N. J.
SPRINGFIELD Metal Body Co., Springfield, Mass.

DROP FORGINGS

AMERICAN and British Co., Bridgeport, Ct.
ANDERSON, W. T. & Sons, Inc., Detroit, Mich. (see page 15).
BAKER, Jas. H., Mfg. Co., 503 Park Bldg., Pittsburg, Pa.
BELDEN Machine Co., New Haven, Conn.
BETHLEHEM Steel Co., So. Bethlehem, Pa.
BILLINGS & Spencer Co., Hartford, Conn.
BLAKESLEE Forging Co., Plantsville, Conn.
BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.
BROOKEBANK, Mullin & Co., 409 Commerce St., Philadelphia, Pa.
BUFFALO Engine Co., 12-20 Perry St., Buffalo, N. Y.
CAPE Ann Tool Co., Pigeon Cove, Mass.
CHICAGO Drop Forge Co., Kensington, Ill.
CHICAGO Drop Forge & Foundry Co., West Pullman, Ill.
CLAPP, E. D., Mfg. Co. (The), Auburn, N. Y.
CONSOLIDATED Mfg. Co., Toledo, O.
CORLISS Engine Works, Providence, R. I.
CORTLAND Forging Co., Cortland, N. Y.
DYSON, Jos. & Sons, Hamilton & Kirtland Sts., Cleveland, O.
EASTERN Forge Co., 70 Kilby St., Boston, Mass.
ECCLES, Richard, Auburn, N. Y.
ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.
FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.
GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
INDIANAPOLIS Drop Forging Co., Madison Ave. and Downey St., Indianapolis, Ind.
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KILBORN & Bishop Co. (The), New Haven, Conn.

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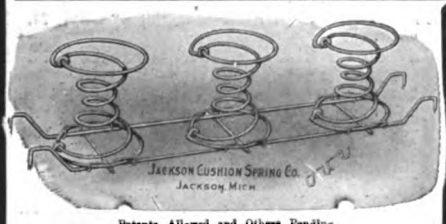

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REESE Machine & Tool Wks., Plymouth, Pa.
REVERE Drop Forge Co., Revere, Mass.
RYMAN Co., K. L., 164 Market St., Newark, N. J.
SCRANTON Forging Co., Scranton, Pa.
SEWARD & Son Co., M., New Haven, Conn.
SMITH Co., A. O., Milwaukee, Wis.
SMITH, H. D., & Co., Plantsville, Conn.
SPRINGFIELD Drop Forging Co., Springfield, Mass.
STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.
TRASNUE & Williams Co. (The), Alliance, Ohio.
UNION Drop Forge Co., 64-76 E. Ohio St., Chicago, Ill.
WHITMAN & Barnes Mfg. Co., Akron, O.
WILCOX, D., Mfg. Co., Mechanicsburg, Pa.
WILLIAMS, J. H., & Co., Brooklyn, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass. (cold).
WYMAN & Gordon 30 Bradley St., Worcester, Mass.

DUST RINGS (See Felt Washers)

DUST SHIELDS

BROWN, W. H., Lennox Bldg., Cleveland, O.
GODDARD & Allen, Rockford, Ill.
WILEY & Son Co., Wm. H., 1217 Main St., Hartford, Conn.

DYNAMOS (See Generators)

EJECTORS

LOCKE Regulator Co., Salem, Mass.
PENBERTHY Ejector Co., Detroit, Mich.
RUE Mfg. Co., 215 Race St., Philadelphia, Pa.
SHERWOOD Mfg. Co., Buffalo, N. Y.

ELECTROLYTE

KALBFLEISCH Franklin H. Co., 31-35 Burling Slip, N. Y. City.

ELEVATORS (for Garages)

BREWER, Elias, 42 Sudbury St., Boston, Mass.
EATON & Prince, 76 Mich. St., Chicago, Ill.
HOYT Elevator Co., 129 Pearl St., Boston, Mass.
NEW Amer. Elevator Co., The, Curtis and Jefferson Ave., Columbus, O.
OTIS Elevator Co., Railway Exchange, Chicago, Ill.
STORM Mfg. Co., The, foot of Centre St., Newark, N. J.

EMERGENCY CASES (Medical)

U. S. EMERGENCY Case Co., Utica, N. Y. (see page 95).

ENAMELS

ACME White Lead & Color Wks., Detroit, Mich.
AMERICAN Enamel Co., Providence, R. I.
ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
BUFFALO Enamel & Stain Co., 70-72 W. Genesee St., Buffalo, N. Y.
COLOPHITE Co. (The), New Haven, Conn.
DETROIT White Lead Wks., 532 E. Milwaukee Ave., Detroit, Mich.
DITZLER Color Co., 14 Baltimore Ave. W., Detroit, Mich.
FELTON, Sibley & Co., 136-140 North Fourth St., Philadelphia, Pa.
NATIONAL Cement & Rubber Mfg. Co., 3053-3059 Monroe St., Toledo, O.
RUBBER Paint Co., 154-156 W. Van Buren St., Chicago, Ill.
SHERWIN-Williams Co., 100 Canal St., Cleveland, O.
STANDARD Varnish Co., 29 B'way, N. Y. City.
VALENTINE & Co., 257 Broadway, N. Y. City.
WATTS-De Golyer Co. (The), 377-391 Illinois St., Chicago, Ill.

ENAMELING OVENS

AMERICAN Enamel Co., Providence, R. I.
NATIONAL Cement & Rubber Mfg. Co., 3053-3059 Monroe St., Toledo, O.

ENGINES—Gaso. (See Motors—Gasoline)

ENGINES (Steam)

ABELL, Rollin, 370 Atlantic Ave., Boston, Mass.
DIETER Steam Engine Co., 113 Liberty St., New York.
ESTY, Wm., 59 Mill St., Laconia, N. H.
FOX Valveless Steam Engine Co., Rochester, N. Y.
HILL Engine Co., Kenosha, Wis.
KILBURN, Edwin, Spring Valley, Minn.
LAKEPORT Mfg. Co., Lakeport, N. H.
MASON Regulator Co., 158 Summer St., Boston, Mass.
MILNE, Frank, Crescent St., Everett, Mass.
NADIG, C. H., & Bro., Mfg. Co., 16-24 No. 4th St., Allentown, Pa.
RACINE Engine & Iron Wks. Racine, Wis.
RANDALL, G. N., 1094 French St., Meadville, Pa.
ROCHESTER Machine Tool Wks., Ltd., Rochester, N. Y.
SANTA Ana Machine & Foundry Co., Santa Ana, Cal.
SMITH, Wm. J., New Haven, Conn.
UNITED Motor & Vehicle Co., 150 Nassau St., N. Y. City.
WHITFIELD Co. (The), 39-41 Cortlandt St., N. Y. City.
WILLIAMS Co. (The), John, 114-118 Liberty St., N. Y. City.

EYE SHIELDS

AMERICAN Thermo-ware Co., 16 Warren St. (Importers), New York.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

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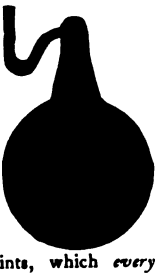

find lots of advertisements of coils, plugs, circuitbreakers, switches in the papers; you will recognize them by their *Lack of Arguments*. Their products having no special merits, the makers have got to dig up the most trivial points, which *every* article of this kind should possess.

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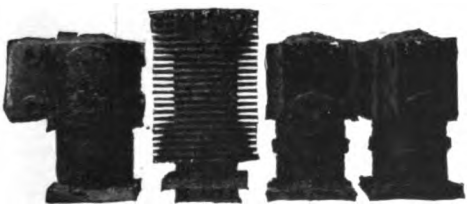

rom 2 1-2 horsepower to 75 horsepower.

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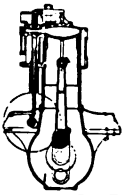

Sample sent on request.

GIANT MOTOR COMPANY, 292 Halsey St., Newark, N. J.

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
CHICAGO Eye Shield Co., 112 Randolph St., Chicago, Ill.
ERHLICH & Son, J., 1345 Broadway, N. Y. City.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
GLOBE Optical Co., Boston, Mass.
LLOYD, A. J., & Co., 323 Washington St., Boston, Mass.
MEYEROWITZ, E. B., 104 E. 23d St., N. Y. City.
MILLS Mfg. Co., 1368-1370 Broadway, N. Y. City.
MUNSELL & Co., Eugene, 218 Water St., N. Y. City.
OELSCHLAGER Bros., 42 E. 23d St., N. Y. City.
OPHTHALMUSCOPE Co., 3322 Monroe St., Toledo, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
SCHEIDIG & Co., Maiden Lane, N. Y. City.
SPENCER Optical Mfg. Co., 15 Maiden Lane, N. Y. City.
SUSSFIELD, Lorsch & Co., 37 Maiden Lane, N. Y. City.
TEXAS Co. (The), Chicago, Ill.

FIRE EXTINGUISHERS

BADGER Fire Extinguisher Co. (The), 32 Portland St., Boston, Mass.
CHILDS Co., O. J., Utica, N. Y.
HARRIS Safety Co., N. Y. City.
HAVERHILL Fire Appliance Co., Haverhill, Mass.
HOWE, G. S. & A. J., Co., 117 Exchange St., Worcester, Mass.
JOHNS-Manville Co., H. W., 100 William St., N. Y. City.
LITTLE Giant Mfg. Co., 88 Wall St., N. Y. City.
MONARCH Fire Appliance Co. 249 Pearl St., New York City.
NEVERMISS Fire Extinguisher Co., Middletown, N. Y.
PHOENIX Appliance Co., 15 W. 28th St., N. Y. City.

FITTINGS (Pipe, Brass)

BARRETT Mfg. Co., James, Boston, Mass.
BELFIELD & Co., H., Philadelphia, Pa.
BELKNAP Mfg. Co., Bridgeport, Conn.
BEST Manufacturing Co., Pittsburg, Pa.
BUCKEYE Iron & Brass Works, Dayton, O.
CENTRAL Brass Works, Cincinnati, Ohio.
CHAMBERS & Ainslee, Newark, N. J.
CRANE Co., Chicago, Ill.
DALTON-INGERSOLL Co., Boston, Mass.
DARLING Pump & Mfg. Co., Williamsport, Pa.
DETROIT Lubricator Co., Detroit, Mich.
DETROIT Sanitary Supply Co., Detroit, Mich.
EASTWOOD Wire Mfg. Co., Belleville, N. J.
EATON, Cole & Burnham Co., New York, N. Y.
FEWLESS-LEEN Brass & Iron Co., Cincinnati, Ohio.
HAMLIN & Emery Brass Co., Boston, Mass.
HALDENVILLE Co., Haydenville, Mass.
HOFFMAN & Billings Manufacturing Co., Milwaukee, Wis.
HUMPHREYS Mfg. Co., Mansfield, Ohio.
IDEAL Manufacturing Co., Detroit, Mich.
ILLINOIS Malleable Iron Co., Chicago, Ill.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 63).
JARECKI Manufacturing Co., Erie, Pa.
KELLY & Jones Co., Greensburg, Pa.
KINSEY & Mahler Co., Peoria, Ill.
McCAMBRIDGE & Co., Philadelphia, Pa.
McDONALD & Morrison Manufacturing Co., A. Y., Dubuque, Iowa.
McNAB & Harlin Mfg. Co., New York, N. Y.
McRAE & Roberts Co., 227-235 Campbell Ave., Detroit, Mich.
MANSFIELD Manufacturing Co., Pittsburg, Pa.
MASON Regulator Co., Boston, Mass.
MILWAUKEE Brass Mfg. Co., Milwaukee, Wis.
MOTT Iron Works, J. L., New York, N. Y.
MULLANEY'S Sons, Jas., New York, N. Y.
NEW Britain Brass Co., New Britain, Conn.
PETRIE, John, New Haven, Conn.
PIONEER Brass Works, Indianapolis, Ind.
PITTSBURG Valve & Fittings Co., Pittsburg, Pa.
PLEUGER & Henger Mfg. Co., 11th and Herbert Sts., St. Louis, Mo.
POWELL Co., Wm., Cincinnati, Ohio.
POWHATTAN Brass & Iron Wks., Charlestown, W. Va.
QUEEN CITY Brass & Iron Works, Cincinnati, O.
REGESTER'S Sons Co., J., Baltimore, Md.
ROSE, Clarence H., 1905 Park Row Bldg., N. Y. City.
RUNDLE-SPENCE Mfg. Co., Milwaukee, Wis.
SPEAKMAN Supply & Pipe Co., Wilmington, Del.
STANDARD Sanitary Mfg. Co., Pittsburg, Pa.
STEBBINS Mfg. Co., E., Springfield, Mass.
THOMAS Brass and Iron Co., Waukegan, Ill.
WALWORTH Manufacturing Co., Boston, Mass.
WESTERN Tube Co., Kewanee, Ill.

FLOATS (Ball)

DIAMOND Stamped Ware Co., Detroit, Mich.
HERCULES Float Co., Springfield, Mass.
NAUGATUCK Mfg. Co., Naugatuck, Conn.

FOOT WARMERS (See Heaters)

FORGE EQUIPMENT

AMERICAN Blower Co., Detroit, Mich.
AMER. Gas. Furnace Co., 23 John St., N. Y. City.
BILLINGS & Spencer, Hartford, Conn.
BOYNTON & Plummer, Worcester, Mass.
BUFFALO Forge Co., Buffalo, N. Y.
HARTFORD Blower Co., Hartford, Conn.
INGERSOLL-Sergeant Drill Co., N. Y. City.
MINER & Peck Mfg. Co., New Haven, Conn.
NILES-Bement-Pond Co., N. Y. City.
STURTEVANT Co., B. F., Boston, Mass.

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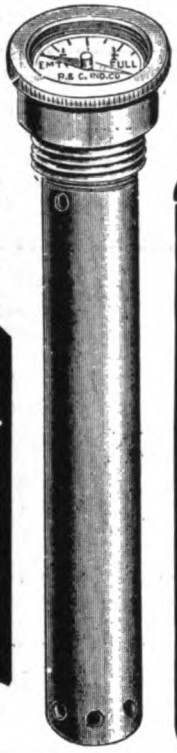

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MUNCIE Wheel & Jobbing Co., Muncie, Ind.

PARRISH & Bingham, Cleveland, O.

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Pressed Steel Co., Philadelphia, Pa.

TURL'S Sons. John, 534 W. 28th St., N. Y. City.

FRAMES AND FITTINGS (Motorcycle)

CURTIS, G. H., Mfg. Co., Hammondsport, N. Y.

GEER, Harry R., 1018 Pine St., St. Louis, Mo. (Dealer and Jobber).

HART Mfg. Co., 370 Atlantic Ave., Boston, Mass.

LAMSON Machine Co., Abington, Mass.

WAGNER Cycle Co., 4143 W. 4th St., St. Paul, Minn.

FRICTION CLUTCHES (See Gears)

FUNNELS (Gasoline)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

A-Z Co. (The), 462 11th Ave., N. Y. City.

Beckley-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).

FROST Mfg. Co., Kenosha, Wis.

HUSSEY Drop Forge & Mfg. Co., Cleveland, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).

TALIAFERRO, W. T., 258 Broadway, N. Y. City.

GASKETS

BRANT, Randolph, 38 Cortlandt St., N. Y.

GOODWIN & Kintz Co., Winsted, Conn.

HERZ & Co., Cor. Elm and Marion Sts., N. Y. City (see page 39).

JOHNS-Manville Co., H. W., 100 William St., New York.

M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 57).

MORSE, R. F., 74 Weybosset St., Providence, R. I.

N. J. Asbestos Co., Camden, N. J.

U. S. Indestructible Gasket Co., 8 So. William St., New York.

U. S. Mineral Wool Co., N. Y. City.

GATES (Driveway)

MANLOVE Gate Co., 272 Huron St., Chicago, Ill.

GAUGES (Gaso. Tanks)

BOSTON Auto Gage Co., 294 Washington St., Boston, Mass.

BLOOD Bros. Auto & Mach. Co., Kalamazoo, Mich.

DUNN Pump & Measure Co., Anderson, Ind.

KINSEY Mfg. Co., Dayton, O. (see back cover).

MARTIN, M. A., 518 W. 63d St., Chicago, Ill.

R. & C. Indicator Co., Bridgeport, Conn. (see page 41).

RUTENBER Co., Chicago, Ill.

SIMMONS, John, Co., 104-110 Centre St., N. Y. City.

GAUGES (Pressure)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plains, Boston, Mass.

ASHCROFT Mfg. Co., 87 Liberty St., N. Y.

ASHTON Valve Co., 271 Franklin St., Boston, Mass.

BOSTON Steam Specialty Co., 168-170 Congress St., Boston, Mass.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFER & Budenburg Mfg. Co., 25 Bedford St., Brooklyn, N. Y.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

WRAY Pump & Register Co., Rochester, N. Y.

GAUGES (Water Line)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plain, Boston, Mass.

KNOWLSON & M'Conihe, 65 River St., Troy, N. Y.

POST & Lester Co. (The), Hartford, Conn. (Importers).

RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

GEAR BLANKS

DETROIT Screw Works, Detroit, Mich.

GEAR CASES (Auto)

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 31).

AUTO Brass & Aluminum Co., Flint, Mich.

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GARFORD Co. (The), Elyria, O. (see page 5).

HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 35)

LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 19).

PIONEER Brass Wks., Indianapolis, Ind.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 29).

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

GEARS (Differential)

BOSTON Gear Wks., 152 Purchase St., Boston, Mass.

BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page 45).

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CULLMAN Wheel Co., 1024 Dunning St., Chicago, Ill. (see page 49).

FORG, Peter, 50 Park St., Somerville, Mass.

GARFORD Co. (The), Elyria, O. (see page 5).

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VIRTUE & Pound Mfg. Co., Owatonna, Minn.
WARNER Gear Co., Muncie, Ind.

GEARS, REVERSE (Marine)

BRODIE, Wm. H., 45 Vesey St., N. Y. City.
CARLYSLE & Johnson Mach. Co., Hartford, Conn.
CONTINENTAL Engine Co., 277 Dearborn St., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
GEARLESS Tranmission Co., Glens Falls, N. Y. (see page opposite).
N. Y. Gear Wks., 56 Greenpoint Ave., Brooklyn, N. Y.
TUTTLE Mfg. Co., H. A., So. Norwalk, Conn.
WARNER Gear Co., Muncie, Ind.

GEARS (Transmission)

AUTO Parts Co., Chicago, Ill.
BEVERLY Mfg. Co., Beverly, Mass.
BOSTON Gear Works, 152 Purchase St., Boston, Mass.
BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page opposite).
BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.
CADY Co., C. N., Canastota, N. Y.
CARLYLE & Johnson Machine Co., Hartford, Conn.
CLEMICK-Hirsch Co., 594-596 National Ave., Milwaukee, Wis.
CONTINENTAL Engine Co., 277 Dearborn St., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
DES MOINES Auto. Co., 409-411 9th St., Des Moines, Ia.
DETROIT Novelty Mach. Co., 42-48 Larned St., W. Detroit, Mich.
DETROIT Trolley & Mfg. Co., Ltd., 133-137 Beaubien St., Detroit, Mich.
FOSTORIA Fdry. & Mach. Co., Fostoria, O.
GARFORD Co. (The), Elyria, O. (see page 5).
GEARLESS Tranmission Co., Glens Falls, N. Y. (see page opposite).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
KAESTNER Mfg. Co., Charles, South Bend, Ind.
LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.
LEE Mfg. Co. (The), South Park, Port Huron, Mich.
MILWAUKEE Auto. Engine & Supply Co., 703 Winnebago St., Milwaukee, Wis.
MILWAUKEE Motor Co., Milwaukee, Wis.
MUNCIE Auto Parts Co., Muncie, Ind.
MUNCIE Wheel and Jobbing Co., Muncie, Ind.
NEW York Gear Works, 56 Greenpoint Ave., Brooklyn, N. Y.
RAY, Frank S., 1231 Fulton St., Brooklyn, N. Y.
REDINGTON, F. B., & Co., 107-109 S. Sangamon St., Chicago, Ill.
SHATTUCK Co., W. P., 2125 Girard Ave., So. Minneapolis, Minn.
SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.
SMITH Co., A. O., Milwaukee, Wis.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 35).
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
SYRACUSE Gear Co., Syracuse, N. Y. (see page 49).
TORBENSEN Motor Car Co., Bloomfield, N. J.
TREBERT Gas Engine Co., 163-165 Main St., W., Rochester, N. Y. (see page 49).
VIRTUE & Pound Mfg. Co., Owatonna, Minn.
WALKER Motor & Mach. Co., 109 Fort St., E., Detroit, Mich.
WESTERN Auto. Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Motor Co. (The), Logansport, Ind.
WESTON-Mott Co., Utica, N. Y. (see page 15).

GEAR WHEELS (Metal)

ADAPT Machinery Co. (The), 17th St. and Wabash Ave., Chicago.
BOSTON Gear Works, 152 Purchase St., Boston, Mass.
BULTMAN, F. H., & Co., 131 Viaduct, Cleveland, O.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
CULLMAN Wheel Co., 1027 Dunning St., Chicago, Ill. (see page 49).
DETROIT Screw Works, Detroit, Mich.
FELLOWS Gear Shaper Co. (The), Springfield, Vt.
NEW Process Rawhide Co., Syracuse, N. Y.
NUTALL, R. D., Co., Fayette St. and Garrison Way, Pittsburg, Pa.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 35).
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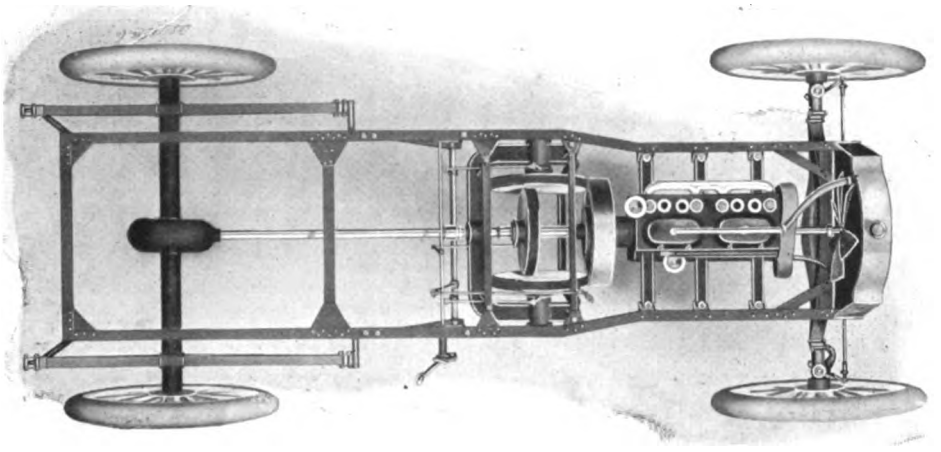

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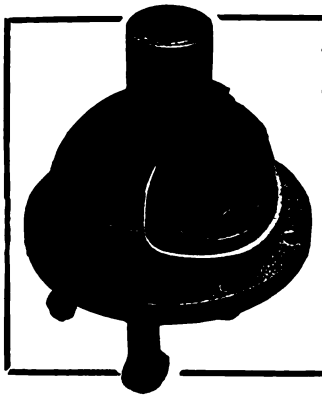

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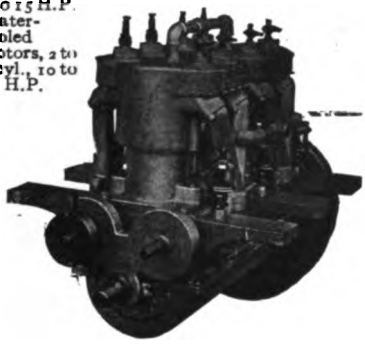

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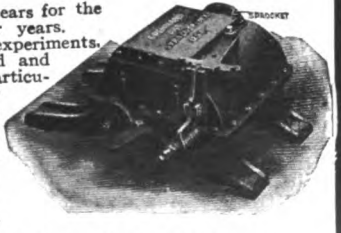

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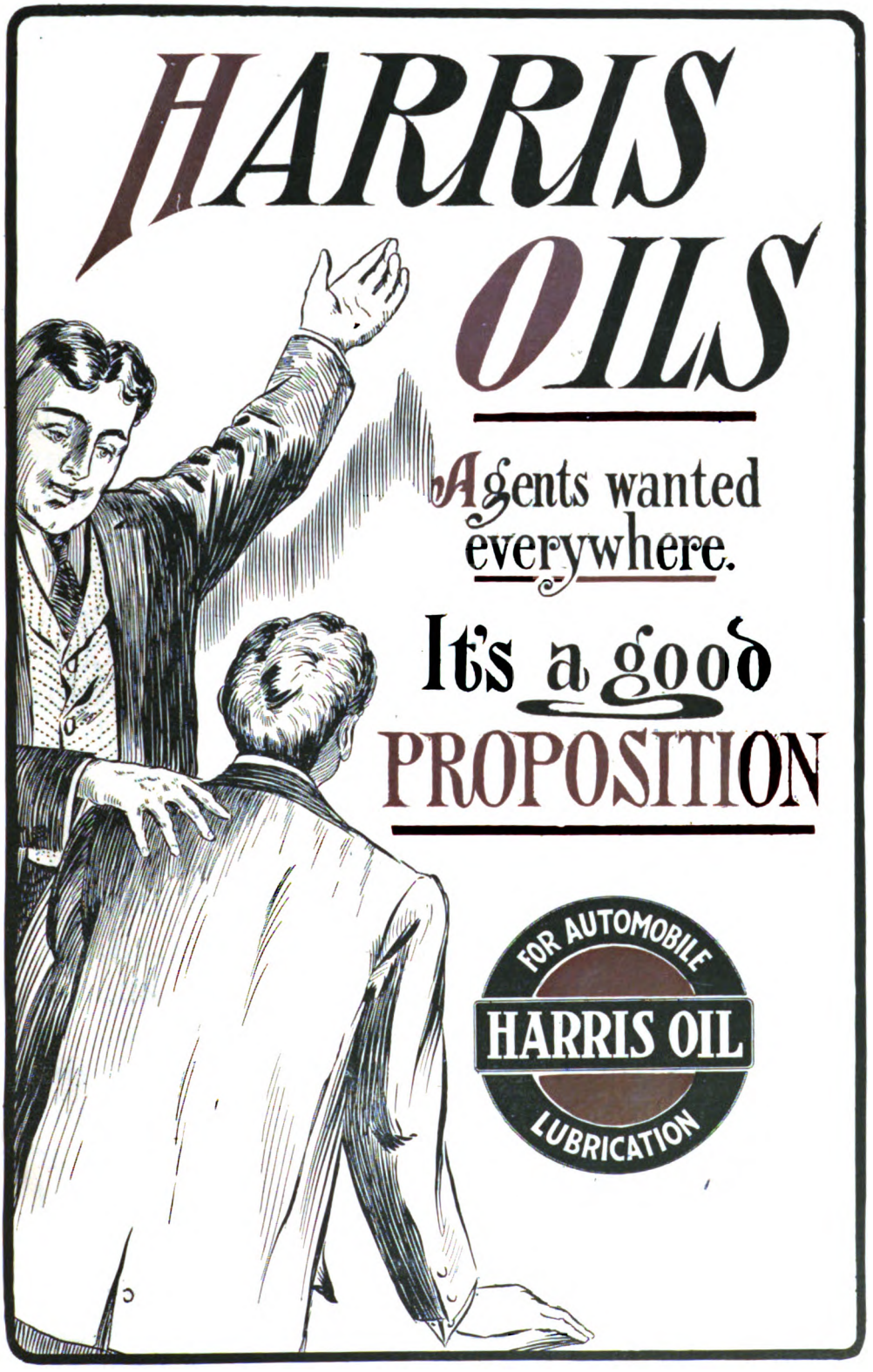

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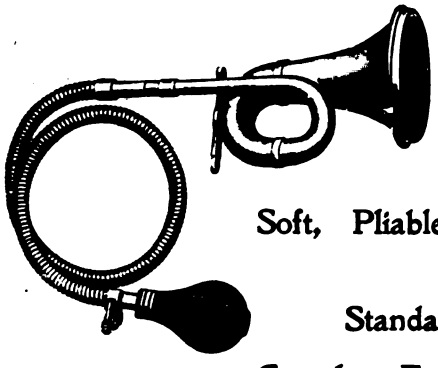

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BROOKS Odometer Co., 17 Nicolet St., Lowell, Mass.
CHICAGO Pneumatic Tool Co., Fisher Bldg., Chicago, Ill.
DAVIS, S. H., & Co., 68-70 Portland St., Boston, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
JONES, J. W., 127 W. 32d St., N. Y. City.
McGIEHAN Odometer & Mfg. Co., 137 W. 32d St., N. Y. City
MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
SMITH Manufacturing Co., R. H., Springfield, Mass. (see page opposite).
SPEED Indicator Co. (The), 415 N. W. Bldg., Minneapolis, Minn.
Veeder Mfg. Co., Hartford, Conn.
WARNER Instrument Co., 52 Roosevelt Ave., Beloit, Wis. (see page 59).
WEBB Co. (The), 1679 Broadway, N. Y. City.
WOOD Speedometer Co., 106 Sudbury St., Boston, Mass.

INJECTORS (See Lubricators)

INSULATORS (See Mica Insulators, Porcelain Insulation, Wire Insulated)

IRON AND STEEL (Angle, Channel and Tee)

AMERICAN Steel Hoop Co., Pittsburg, Pa.
CAMBRIA Steel Co., Philadelphia, Pa.
CARNEGIE Steel Co., Pittsburg, Pa.
PENNSYLVANIA Steel Co., Steelton, Pa.
REPUBLIC Iron & Steel Co., Chicago, Ill.

IRON AND STEEL (Bar)

AM. Iron & Steel Mfg. Co., Lebanon, Pa.
AMERICAN Steel Hoop Co., Pittsburg, Pa.
BRAEBURN Steel Co., Braeburn, Pa.
CAMBRIA Steel Co., Philadelphia, Pa.
CARNEGIE Steel Co., Pittsburg, Pa.
CRUCIBLE Steel Co. of Am., Pittsburg, Pa.
DIAMOND State Steel Co., Wilmington, Del.
LOCKHART Iron & Steel Co., McKee's Rocks, Pa.
LOGAN Iron & Steel Co., Burnham, Pa.
NATIONAL Steel Co., Pittsburg, Pa.
PASSAIC Steel Co., Paterson, N. J.
PENNSYLVANIA Steel Co., Steelton, Pa.
PHOENIX Iron Co., Phoenixville, Pa.
PITTSBURG Steel Shafting Co., Braddock, Pa.
REPUBLIC Iron & Steel Co., Chicago, Ill.

IRON AND STEEL (Sheet)

AMERICAN Sheet Iron Co., Phillipsburg, N. J.
AMERICAN Sheet Steel Co., New York, N. Y.
BASSETT-Pressley Co., Cleveland, O.
CANONSBURG Iron & Steel Co., Pittsburg, Pa.
McCULLOUGH Iron Co., Wilmington, Del.
MARYLAND Sheet & Steel Co., Cumberland, Md.
TAYLOR Co., N. & G., Philadelphia, Pa.
WAITE, Ranlet & Co., 80-82 Broad St., Boston, Mass.
WAUKESHA Sheet Steel Co., Waukesha, Wis.
YOUNGSTOWN Iron, Sheet & Tube Co., Youngstown, Ohio.

JACKS

ANDERSON, W. T. & Sons, Inc., Detroit, Mich. (see page 15).
ANDERSON Pole & Shaft Co., Anderson, Ind.
AUTOBED Co. (The), Boston, Mass. (Automatic Lift).
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTO. Supply Co., Binghamton, N. Y.
BARTH Mfg. Co., Milwaukee, Wis.
BATAVIA Clamp Co., Batavia, N. Y.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BUCKEYE Jack Mfg. Co., Louisville, O.
COOK'S Railway Appliance Co., Kalamazoo, Mich.
COVERT Mfg. Co., West Troy, N. Y.
DUFF Mfg. Co., Pittsburg, Pa.
EUREKA Mower Co., Utica, N. Y.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
GARLICK Auto. Prop. Co., Madison Ave. and Broadway, Paterson, N. J.
GLOBE Jack Co., Philadelphia, Pa.
JERSEY Brake Co., 93 Green St., Newark, N. J.
LOCKHART, W. J., 28 Beach St., Boston, Mass.
MAXWELL, L. R. & Co., Cedar Rapids, Ia.
MIAMI Pattern Wks., Dayton, O.
OLIVER Mfg. Co., 213 So. Desplaines St., Chicago, Ill.

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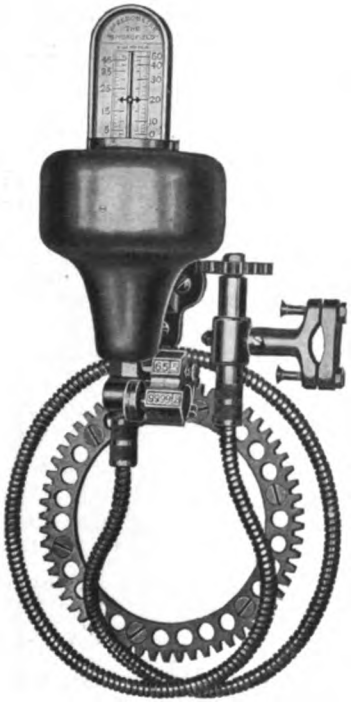

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PEARSALL Mfg. Co., 345-347 W. Fayette St., Syracuse, N. Y.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
ROTH Jack and Tool Co., 68 William St., New York.
SHAW Engineering & Mfg. Co., Newark, N. J.
SHAWVER Co., Springfield, O.
SMITH & Heminway, 296 Broadway, N. Y. City.
TRENTON Malleable Iron Co., Trenton, N. J.
UNIVERSAL Jack & Power Co., Flatiron Bldg., New York, N. Y.
WHIPPLE, R. W., 169 State St., Binghamton, N. Y.

JOINTS (Flexible)

BAUSCH Machine Tool Co., Wason Ave., Springfield, Mass.
BLOOD Bros. Auto. & Mach. Co., Kalamazoo, Mich.
CALDWELL-Wilcox Co., Newbury, N. Y.
COATES Clipper Mfg. Co., Worcester, Mass
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
LAIB Co., Louisville, Ky.
LEHMAN, I., 61 Middle St., Cleveland, O.
MORAN Flexible Joint Co., 149 3d St., Louisville, Ky.
MUTUAL Machine Co., Hartford, Conn.
SPICER Universal Joint Mfg. Co., Plainfield, N. J.
VANDERBEEK Tool Wks., Hartford, Conn.

LAMP BRACKETS

AUTO Brass & Aluminum Co., Beach and Mill Sts., Flint, Mich.
BEVIN Bros. Mfg. Co., East Hampton, Conn.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DAKIN, B. E., 219 Bond Bldg., Washington, D. C.
DOUGLAS & Lomason Co., Detroit, Mich. (see page 37).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
KELLY Handle Bar Co., Cleveland, O.
MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 45).
SMITH & Co., Jos., Fourth and Porter Sts., Detroit, Mich.
STANDARD Welding Co., Cleveland, O.

LAMP BRACKETS (Automatic)

IMPERIAL Brass Mfg. Co., 251 So. Jefferson Ave., Chicago, Ill. (see page 63).

LAMP COVERS]

EMPIRE Rubber Co., 115-117 Worth St., N. Y. City.
GILBERT Mfg. Co., 70-80 Center St., New Haven, Conn. (see page 35).
LONDON Auto Supply Co., 1229 Michigan Ave., Chicago, Ill. (see page 91).

LAMPS

AMERICAN Lamp Co., 83 Randolph St., Detroit, Mich.
AMERICAN Lamp Wks., 62 West 43d St., N. Y. City.
ANGUILLI, Luigi, 182 Centre St., New York, N. Y.
APFEL-Murdoch & Co., 82 Lake St., Chicago, Ill.
ATWOOD Mfg. Co., Amesbury, Mass.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
A-Z Co., 462 11th Ave., N. Y. City.
BADGER Brass Mfg. Co., Kenosha, Wis.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BROWN Mfg. Co., Columbus, O.
CHICAGO Battery Co., Michigan Ave. & 14th St., Chicago, Ill.
COLT Co., J. B., 21 Barclay St., N. Y. City.
CORCORAN Lamp Co. (The), 1712 Reading Rd., Cincinnati, O. (see page opposite).
COWLES, C., & Co., New Haven, Conn.
DAYTON Mfg. Co., 2240 E. 3d St., Dayton, Ohio.
DIETZ, R. E., Co., 33 Laight St., N. Y. City.
EDMUNDS & Jones, 315 Riopelle St., Detroit, Mich.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FUNKE, A. H., 83 Chambers St., N. Y. City.
GRAY & Davis, Amesbury, Mass.
GRAY, Peter & Sons, 88-90 Union St., Boston, Mass.
HAM Mfg. Co., C. T., Rochester, N. Y.
HINE-Watt Mfg. Co., 58 Wabash Ave., Chicago, Ill.
LOCKWOOD, C. N., & Co., 57 Mechanic St., Newark, N. J.
MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.
MANHATTAN Lamp Works, 46 W. 67th St., N. Y. City.
MILLER Mfg. Co., Peekskill, N. Y.
NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.
NATIONAL Elec. Supply Co., Washington, D. C.
NEWARK Coach Lamp Co., 84-96 Monroe St., Newark, N. J.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
RICHMOND, Ind., Mfg. Co., Richmond, Ind.
ROSE Mfg. Co., 910 Arch St., Phila., Pa.
RUBAY, Leon, 136 W. 38th St., N. Y. City.
RUSHMORE Dynamo Wks., Plainfield, N. J.
SCOVILLE & Peck Co. (The), New Haven, Conn.
STANDARD Carriage Lamp Co., 43-49 So. Canal St., Chicago, Ill.
STEVENS & Sackett Co. (The), 129-131 Union St., New Haven, Conn.
TWENTIETH Century Mfg. Co., 19 Warren St., New York, N. Y.
U. S. Headlight Co., Buffalo, N. Y.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WHITE Mfg. Co., Bridgeport, Conn.

LAMPS (Water Glass)

DIETZ, R. E., Co., 33 Laight St., N. Y. City.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.

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AMERICAN Oak Leather Co., Cincinnati, O.
ASHTABULA Hide & Leather Co., Ashtabula, O.
CLEVELAND Tanning Co. (The), Jennings and Dennison Ave., Cleveland, O.
DIAMOND Leather Co., Peabody, Mass.
DUSENBURY & Son, C. Coles, New York, N. Y.
HALSEY & Smith, J. H. Shipman and Springfield Ave., Newark, N. J.
HOWELL & Co., T. P. Newark, N. J.
RASER Tanning Co., Ashtabula, O.
REX Imperial Leather Co., 12 Chappel St. Newark, N. J.
STANDARD Leather Co., Allegheny, Pa.

LEATHER (Artificial)

BOSTON Artificial Leather Co., 12 E. 18th St., N. Y. City.
PANTASOTE Leather Co. (The), 29 B'way, N. Y. City.

LEGGINGS (See Clothing)

LEVERS (Hand)

GARFORD Co. (The), Elyria, O. (see page 5).

LICENSE NUMBER (See Name Plates)

LOCKERS (For Clothing)

DARBY & Sons Co., Edward, 233 Arch St., Philadelphia, Pa.
ART Metal Construction Co., Jamestown, N. Y.

LUBRICANTS (See Oils and Greases)

LUBRICATORS

AMERICAN Injector Co., Detroit, Mich.
AMERICAN Lubricator Co., Detroit, Mich.
AUTO Brass & Aluminum Co., Flint, Mich.
BAY State Stamping Co., Worcester, Mass.
BOWEN Mfg. Co., Auburn, N. Y.
CHARTER Mfg. Co., 59 Clark St., Chicago, Ill.
DETROIT Lubricator Co., 12 Hodges Bldg., Detroit, Mich.
ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.
FRASSE Co. (The), 38 Cortlandt St., N. Y. City.
GLOBE Mach. & Stamping Co., Cleveland, Ohio.
GREENE, Tweed & Co., 17 Murray St., N. Y. City.
HANCOCK Inspirator Co. (The), 85 Liberty St., N. Y. City.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
IMPERIAL Brass Mfg. Co. (The), 245-247 So. Jefferson St., Chicago, Ill.
KELLY & Jones Co. (The), Greensburg, Pa.
KING, James D., 433 De Kalb Ave., Brooklyn, N. Y.
KINSEY Mfg. Co., Dayton, O. (see back cover).
LEE Injector Co. (The), Port Huron, Mich.
LOCKE Regulator Co., Salem, Mass.
LUNKENHEIMER Co. (The), Cincinnati, O.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page opposite).
M'RAE & Roberts Co., Detroit, Mich.
MADISON-Kipp Mfg. Co., Madison, Wis.
MAGNET Cement & Dressing Co., 878 No. 48th St., Phila., Pa.
MICHIGAN Lubricator Co., 661 Beaubien St., Detroit, Mich.
NATHAN Mfg. Co., 86 Liberty St., N. Y. City.
NOERA Mfg. Co., Waterbury, Conn.
PEDERSEN, J. T., 644 First Ave., New York, N. Y.
PENBERTHY Ejector Co., 220 Abbot St., Detroit, Mich.
PHENIX Metallic Packing Co., 7-9 So. Jefferson St., Chicago, Ill.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.
STAR Brass Mfg. Co., 108 E. Dedham, St., Boston, Mass.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page opposite).
TUCKER, W. W. & C. F., Hartford, Conn.
WILLIAM Powell Co. (The), 2525 Spring Grove Ave., Cincinnati, O.
WINKLEY Co. (The), 66 State St., Hartford, Conn.

MACHINERY (Special Automobile)

BARNES, W. F. & John, Co., Rockford, Ill. (see page 89).
BEAMAN & Smith Co. (The), Providence, R. I.
BROWN & Sharpe Mfg. Co., Providence, R. I.
BULLARD Mach. Co., Bridgeport, Conn.
CINCINNATI Electric Tool Co., 650-652 Evans St., Cincinnati, O.
CINCINNATI Milling Machine Co., Cincinnati, Ohio.
FELLOWS Gear Shaper Co. (The), Springfield, Vt.
FIELD Co., Chas. H., 230 Chestnut St., Providence, R. I.
FITCHBURG Machine Wks., Fitchburg, Mass.
FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.
GARDAM & Son, Wm., 45-51 Rose St., New York.
GARVIN Machine Co., Spring & Varick Sts., New York.
GEOMETRIC Tool Co., Westville Sta., New Haven, Conn.
GISHOLT Machine Co., Madison, Wis.
HARTFORD Machine Screw Co., Hartford, Conn.
HEALD Machine Co. (The), Worcester, Mass.
HILL, Clarke & Co., 156 Oliver St., Boston, Mass.
HISEY-Wolf Machine Co., Cincinnati, O.
KEMPSMITH Mfg. Co. (The), Milwaukee, Wis.
LANDIS Tool Co., Waynesboro, Pa.
LAPOINTE Machine Tool Co., Boston, Mass.
NILES-Bement-Pond Co., 136 Liberty St., New York.
NORTON Grinding Co., Worcester, Mass.
POTTER & Johnston Machine Co., Pawtucket, R. I.
PRATT & Whitney Co. (The), Hartford, Conn.
PRENTISS Tool & Supply Co., 115 Liberty St., N. Y. City.

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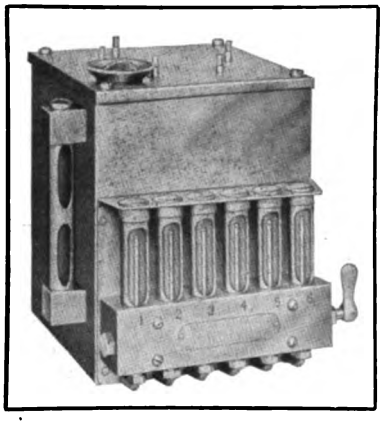

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STEPTOE Shaper Co. (The), Jno., Cincinnati, O.
VON WYCK Machine Tool Co., Cincinnati, Ohio.
WHITNEY Mfg. Co., Hartford, Conn.
WHITON, D. E. Machine Co., New London, Conn.

MAGNETOS (See Igniting Devices)

MAPS (Road)

MENDENHALL, C. S., 512 Race St., Cincinnati, O.

MARKERS (See Name Plates)

MATS (Rubber)

BOSTON Woven Hose Co., Cambridge, Mass.
CALUMET Tire Rubber Co., 43d and Wabansia Ave., Chicago, Ill.
DIAMOND Rubber Co., Akron, O.
EMPIRE Rubber Co., Trenton, N. J.
FAIRFIELD Rubber Co., Fairfield, Conn.
GOODRICH, B. F., Co., Akron, O.
HARTFORD Rubber Works Co., Hartford, Conn.
MONARCH Rubber Co., 41 N. 7th St., Philadelphia, Pa.
NEW JERSEY Car Spring & Rubber Co., Wayne & Brunswick Sts., Jersey City, N. J.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
VICTOR Rubber Tire Co., Springfield, O.

METALS (Babbitt)

ADVANCE Mfg. Co., Todd Bldg., Kalamazoo, Mich.
ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page —).
COLUMBIA Smelting & Refining Co., 307 Water St., N. Y. City.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
MAGNOLIA Metal Co., 113-115 Bank St., N. Y. City.
MUZZY-Lyon Co. (The), Detroit, Mich.
PHOSPHOR-Bronze Smelting Co. (The), Ltd., 2200 Washington Ave., Phila., Pa.
REEVES, Paul S., & Son, 1415 Catherine St., Phila., Pa.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 29).
WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

METALS (Brass and Copper)

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page —).
ANSONIA Brass & Copper Co., Ansonia, Conn.
BOKER & Co., Herman, 101 Duane St., N. Y. City.
BRIDGEPORT Brass Co., Bridgeport, Conn.
CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
EATON, Cole & Burnham, 253 Broadway, N. Y. City.
ELECTRIC Smelting & Aluminum Co. (The), Lockport, N. Y.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
NEW HAVEN Copper Co., New Haven, Conn.
RANDOLPH-Clowes Co., Waterbury, Conn.

METAL (Perforated)

ATCHISON, The Robt., Perforated Metal Co., 303 Dearborn St., Chicago, Ill.
HARRINGTON & King Perforating Co., 236 N. Union St., Chicago, Ill.

MICA (Insulation)

AMERICAN Mica Co., Newton Lower Falls, Mass.
AMERICAN Mica Mining & Milling Co., Cuyahoga Falls, O.
ASHEVILLE Mica Co., Asheville, N. C.
CAROLINA Locust Pin & Mica Co., Franklin, N. C.
CHICAGO Mica Co., Valparaiso, Ind.
MICA Insulator Co., New York and Chicago.
MICA Manufacturing Co., New York, N. Y.
MUNSELL, Eugene, & Co., 218 Water St., N. Y. City.
NORTH Carolina Mica Co., Boston, Mass.
SCHOONMAKER, A. O., 221 Fulton St., N. Y. City.
SILLS-Eddy Mica Co., Newark, N. J.
UNION Mica Co., 56 Pine St., N. Y. City.
VANCE, D. T., Plumtree, N. C.

MODEL MAKERS (See Pattern Makers)

MOTORCYCLE ACCESSORIES

A. & J. Mfg. Co., 13 S. Canal St., Chicago, Ill.
AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BARBER, A. S., Coney Island Cycle Path, Brooklyn, N. Y.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.
CURTIS, G. H., Mfg. Co., Hammondsport, N. Y.
DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.
EUREKA Mfg. Co., St. Paul, Minn
GEER & Co., Harry R., 1018 Pine St., St. Louis, Mo. (Dealer and Jobber).
HART Mfg. Co., 370 Atlantic Ave., Boston, Mass.
HENDEE Mfg. Co., 216 Worthington St., Springfield, Mass.
HOLLAND Auto Co. (The), 60-62 Van Winkle Ave., Jersey City, N. J.
METZ, C. H., Waltham, Mass.
PARAGON Motor Co., Springfield, Mass.
PARKIN, J. W. & Son, 2613 No. Broad St., Phila., Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).

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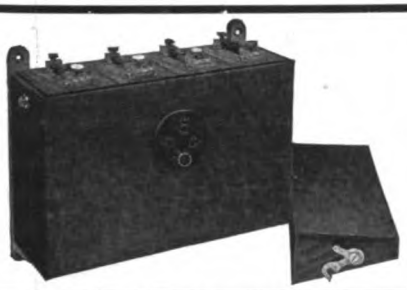

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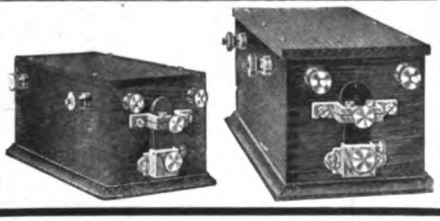

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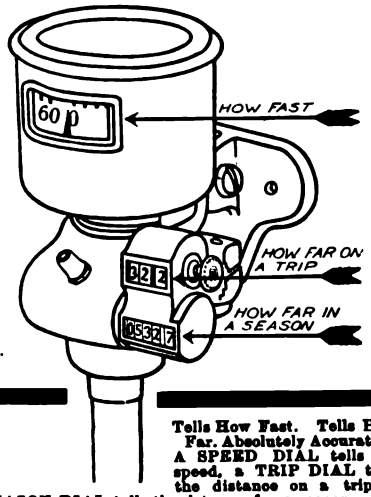

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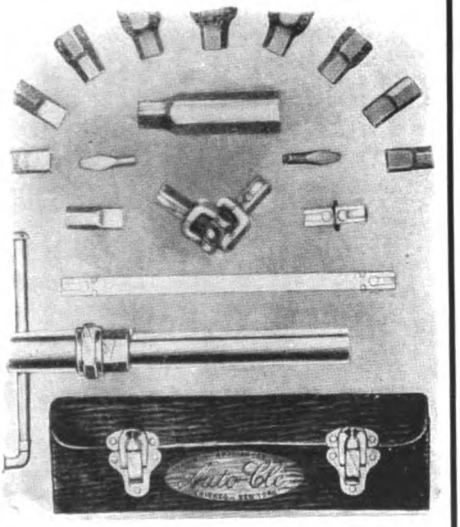

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WAGNER Cycle Co., 41-43 4th St., St. Paul, Minn.
WILLIAMSON, Thos. G., 8 So. 39th St., Philadelphia, Pa.

MOTORS (Cycle)

ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.
AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.
BARBER, A. S., Coney Island Cycle Path, Brooklyn, N. Y.
BRADLEY, C. E., Motor Co., 268 Diamond St., Phila., Pa.
BUCKEYE Motor Co., 201 So. High St., Columbus, O.
CLAY & Co., E. H., Chagrin Falls, O.
CULP, Thomas S., 625-627 Mahoning St., Canton, O.
DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.
DUSENBERG, A. S., Garner, Ia.
FERODOWILL Mfg. Co., 214 W. Indiana St., St. Paul, Minn.
GEER Co., Harry R., 1018 Pine St., St. Louis, Mo.
GIANT Motor Co., Newark, N. J. (see page 39).
HARLEY-Davidson Co., 315 37th St., Milwaukee, Wis.
HARPER, F. R., Beverley, Mass.
HOLLAND Auto Co. (The), 60-62 Van Winkle Ave., Jersey City, N. J.
KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page opposite).
LACKAWANNA Mfg. Co., Newburgh, N. Y.
LAMSON Machine Co., Abington, Mass.
MAYO Damper Co., 355 Walnut St., Pottstown, Pa.
MERKEL Motor Co. (The), 1095-1097 26th Ave., Milwaukee, Wis.
PARKIN, J. W., & Son, 2613 No. Broad St., Phila., Pa.
PARAGON Motor Co., 3 Walnut St., Springfield, Mass.
PIONEER Motor Cycle Co., 290 Grove St., Jersey City, N. J.
STEFFEY Mfg. Co., 2722 Brown St., Philadelphia, Pa.
THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.
UNION Motor Co., Portage, O.
WAGNER Cycle Co., 41-43 W. 4th St., St. Paul, Minn.
WILLIAMSON, Thos. G., 8 So. 39 th St., Philadelphia, Pa.

MOTORS (Electric)

BROWNING Mfg. Co., Milwaukee, Wis.
BULLOCK Electric Co., Cincinnati, O.
C. & C. Electric Co., 143 Liberty St., N. Y. City.
CHAPMAN, W. H., Portland, Me.
EDDY Electric Mfg. Co. (The), Windsor, Conn.
ELECTRIC Vehicle Equipment Co., 20th & Montgomery Ave., Philadelphia, Pa.
ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.
FT. WAYNE Electric Works, Ft. Wayne, Ind.
GENERAL Electric Co., Schenectady, N. Y.
GILMORE Electric Co., 625 First St., Boston, Mass.
HERTNER Electric Co., Cleveland, O.
KENDRICK & Davis, Lebanon, N. H.
LAMB & Co., Kent & Lyons Sts., Grand Rapids, Mich.
LINCOLN Electric Co., World Bldg., Cleveland, O.
MERRIAM-Abbot Co., 60 E. Prospect St., Cleveland, O.
MILWAUKEE Electric Co., Milwaukee, Wis.
PARSELL & Weed, 129-131 W. 31st St., N. Y. City
ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.
SPRAGUE Electric Co., 527 W. 34th St., N. Y. City.
STERLING Electric Motor Co., Dayton, O.
STOREY Motor & Electric Co., 321 Sussex St., Harrison, N. J.
WAGNER Electrical Mfg. Co., St. Louis, Mo.
WESTINGHOUSE Elec. & Mach. Co., Pittsburg, Pa.

MOTORS (Gaso. Auto)

ALEXANDER & Crouch, 41 So. Canal St., Chicago, Ill.
BADECKER Gas Engine Co., Omaha, Neb.
BEAVER Mfg. Co., Barclay & Oregon Sts., Milwaukee, Wis. (see page opposite).
BEILFUSS Motor Co. (The), E. Saginaw St., Lansing, Mich.
BEVERLY Mfg. Co., Beverly, Mass.
BOWEN Motor Co., 92 Boynes St., Buffalo, N. Y.
BRENNAN Motor Co., Syracuse, N. Y. (see page opposite).
BUCHNER CO., Albert, 911 So. Homan Ave., Chicago, Ill.
BUCKEYE Motor Co., Columbus, O.
BUFFALO Engine Co., 12-20 Perry St., Buffalo, N. Y.
BUFFALO Gasoline Motor Co., 1286 Niagara St., Buffalo, N. Y.
BURTT Mfg. Co., 128 No. Edward St., Kalamazoo, Mich.
CARLSON, Charles A., 1060 Bedford Ave., Brooklyn, N. Y.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CONTINENTAL Engine Co., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
CUSHMAN Motor Co. Lincoln, Neb.
DART Mfg. Co., 526 Sheffield Ave., Chicago, Ill.
DAVIS Mfg. Co., 935 30th St., Milwaukee, Wis.
DESMARAIS, P., Root Island St., Bristol, Conn.
DURYEA Power Co., Reading, Pa.
FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.
GIANT Motor Co., Newark, N. J. (see page 39).
GRANT-Ferris Co., Troy, N. Y.
GOSHEN Motor Works, Goshen, Ind.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HOFFMAN Motor Co., H. L., 384 Wabash Ave., Chicago, Ill.
HOMAN, J. & E., 380 West Broadway, N. Y. City.
KAESTNER Mfg. Co., Chas., South Bend, Ind.

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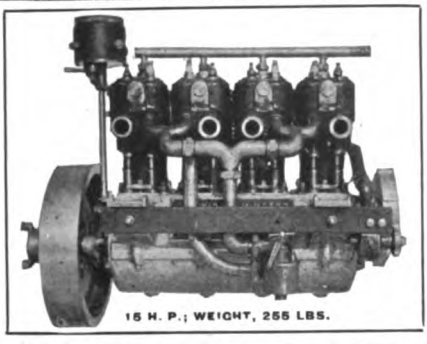

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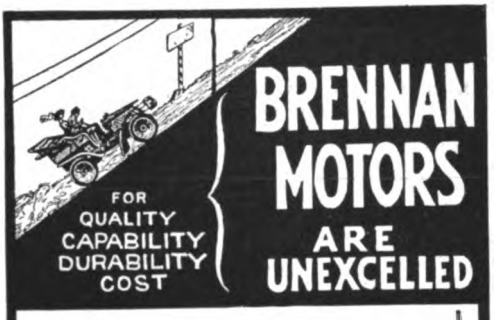

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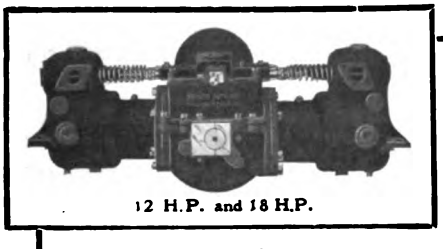

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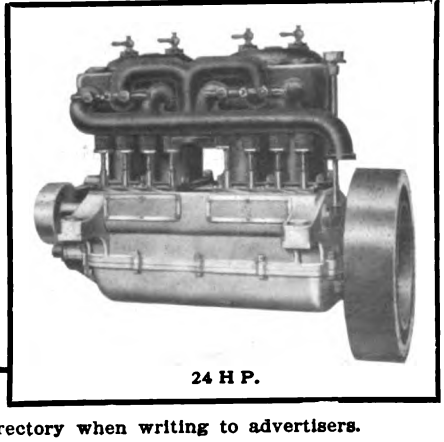

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KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 61).
LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.
LELAND & Faulconer Mfg. Co., 480-500 Twombly Ave., Detroit, Mich. (see page 21).
LOWELL Model Co., Lowell, Mass.
LOZIER Motor Co., Plattsburgh, N. Y.
M'FARLAND Foundry & Machine Works, Trenton, N. J.
MAXWELL & Fitch Co., 218 So. Washington St., Rome, N. Y.
MERKEL Motor Co., 1095 26th Ave., Milwaukee, Wis.
MILWAUKEE Auto Engine & Supply Co., 706-708 Winnebago St., Milwaukee, Wis.
MILWAUKEE Motor Co., 615 Clybourn Ave., Milwaukee, Wis.
MODEL Gas Engine Works, Auburn, Ind.
MOHLER & DeGress, 390 Webster Ave., Long Island City, N. Y.
MOTOR Car Power Equipment Co., rear 577 Grove St., Milwaukee, Wis.
MURRAY, W. B., 1253 Milwaukee Ave., Chicago, Ill.
NATIONAL Sewing Machine Co., Belvidere, Ill.
NORTH Chicago Mach. Co. (The), North Chicago, Ill.
O. K. Gas Engine Works, Winchester, O.
OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.
PELTON Gaso. Eng. Works, Lyons, Ia.
PHILLIPS Motor Works, 405 Tacoma Bldg., Chicago, Ill.
PIERCE Engine Works, Racine Junction, Wis.
ROCHESTER Die Shaper Co., Rochester, N. Y.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.
SMITH & Williams, 149 W. State St., Columbus, O.
STREIT Machine Co., A., 1108-10 Harrison Ave., Cincinnati, O.
STROBEN, John, 1416 W. Locust St., Davenport, Ia.
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
TORBENSEN Gear, Inc., Bloomfield, N. J.
TREBERT Auto & Marine Engine Co., Rochester, N. Y.
TREBERT Gas Engine Co., 263 W. Main St., Rochester, N. Y. (see page 49).
VAN AUKEN-Clevance Co., Yonkers, N. Y.
WALKER Motor & Machine Co., 109 Fort St., E., Detroit, Mich.
WESTERFIELD Motor Co. (The), Anderson, Ind.
WESTERN Auto Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Motor Co., Logansport, Ind.

MOTORS (Gasoline, Marine)

AYRES Gasoline Eng. & Auto Works, Saginaw, Mich.
BADECKER Gas Engine Co., Omaha, Neb.
BRENNAN Motor Co., Syracuse, N. Y. (see page 61).
BUFFALO Gasoline Motor Co., 1286 Niagara St., Buffalo, N. Y.
CARLSON, Chas. A., 1060 Bedford Ave., Brooklyn, N. Y.
CHICAGO Caloric Engine Co., 536 Wabash Ave., Chicago, Ill.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CONTINENTAL Engine Co., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
CRAIG & Scott, 556 W. 34th St., New York.
CUSHMAN Motor Co., Lincoln, Neb.
DE MOOY Bros., 765-767 Willson Ave., Cleveland, O.
DETROIT Auto Marine Co., 82 Congress St., E. Detroit, Mich.
DULUTH Gas Engine Works, Minnesota Ave. & Vine St., Duluth, Minn.
FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.
FAY & Bowen Mfg. Co., Geneva, N. Y.
HASBROUCK Motor Works, Inc., West Mystic, Conn.
HILDRETH Motor & Pump Co. (The), Waterside Ave., Lansing, Mich.
HOFFMAN Motor Co., H. L., 384 Wabash Ave., Chicago, Ill.
KAHLENBERG Bros., Two Rivers, Wis.
KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 61).
KOWALSKY Engine Co. (The), J., Verona, Pa.
LACKAWANNA Mfg. Co., Newburgh, N. Y.
LOZIER Motor Co., Plattsburgh, N. Y.
MIANUS Motor Works, Mianus, Conn.
MILWAUKEE Motor Co., 615 Claybourn Ave., Milwaukee, Wis.
MOHLER & DeGress, 390 Webster Ave., Long Island City, N. Y.
NEW LONDON Motor Co., New London, Conn.
NORTH Chicago Mach. Co. (The), North Chicago, Ill.
OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.
PALMER Bros., Cos Cob, Conn.
PHILLIPS Motor Works, 405 Tacoma Bldg., Chicago, Ill.
PIERCE Engine Works, Racine Junction, Wis.
PIGGINS Bros., Racine, Wis.
SMALLEY Motor Co., Ltd., Bay City, Mich.
SMITH & Williams, 149 W. State St., Columbus, O.
STRELINGER Co., Chas. A., Cor. Bates and Congress Sts., Detroit, Mich.
TEMPLE Pump Co. (The), 15th St. and 15th Pl., Chicago, Ill.
TREBERT Auto & Marine Engine Co., Rochester, N. Y.
TREBERT Gas Engine Co., 263 W. Main St., Rochester, N. Y. (see page 49).
VIRTUE & Pond Mfg. Co., Owatanna, Minn.
WALKER Motor & Mach. Co., 109 Fort St., E., Detroit, Mich.
WESTERN Auto Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Gas Engine Co., Michigan City, Ind.
WESTERN Launch & Engine Works, Michigan City, Ind.

MOTORS (Kerosene)

ACME Oil Engine Co., Union Ave., near R. R., Bridgeport, Conn.
BUFFALO Gasoline Motor Co., Niagara St., Buffalo, N. Y.
DIESEL Motor Co., 11 Broadway, N. Y. City.
FRANTZ Mfg. Co., Cherryville, Pa.
INTERNATIONAL Power Vehicle Co., 216 Pacific St., Stamford, Conn.
MIETZ, A., 128 Mott St., N. Y. City.
NEW YORK Kerosene Oil Motor Co. (The), 31 Burling Slip, New York, N. Y.

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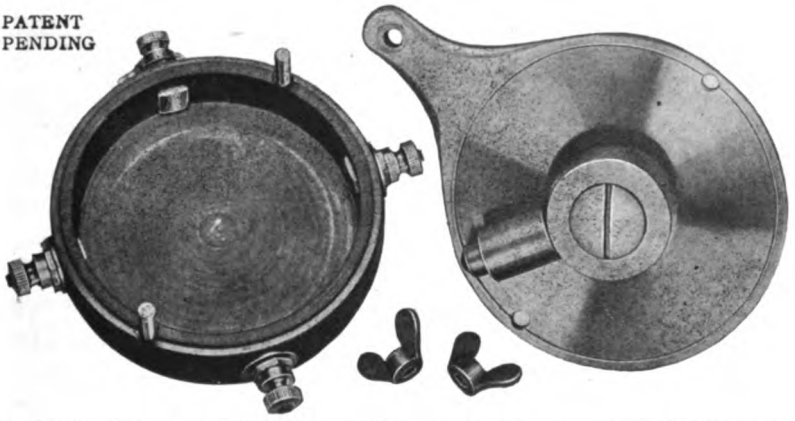

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MUD GUARDS (See Dashes and Fenders)

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A-Z Co. (The), 462 11th Ave., N. Y. City.
BRISCOE Mfg. Co., 1431 Woodward Ave., Detroit, Mich. (see page 73).
BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.
BYRNE, Kingston & Co., Kokomo, Ind.
BUCHNER Co., Albert, 911 So. Homan Ave., Chicago, Ill.
CHAMPION Mfg. Co., 9-15 Alling St., Newark, N. J.
GRAY Hawley Mfg. Co., 605-609 Fort St. W., Detroit, Mich.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HAYNEY, Geo. F., Lynn, Mass.
W. J. KELLS Mfg. Co., Newark Ave., Newark Ave., cor. West Side, Jersey City, N. J. (see page 15).
KINSEY Mfg. Co., Dayton, O. (see back cover.
MAYO Damper Co., 355 Walnut St., Pottstown, Pa.
MILWAUKEE Motor Co., Milwaukee, Wis.
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
MOTOR Car Power Equipment Co., rear 577 Grove St., Milwaukee, Wis.
MOTOR & Mfg. Works Co., Ithaca, N. Y.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
SMITH & Co., D. B., Utica, N. Y.
TURNER Brass Works, Chicago, Ill.
WEEBER, C. F., Mfg. Works, 255 Sherman St., Albany, N. Y.
WESTERFIELD Motor Co., Anderson, Ind.
WESTERN Motor Co., Logansport, Ind.

MUFFLERS (Neck)

SCOTT Muffler Co. (The), Portsmouth, O. (see poposite page).
WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

NAME PLATES

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).
ALUMINUM Mfg. Co., Two Rivers, Wis.
ATWOOD Mfg. Co., Amesbury, Mass.
AUTO Brass & Aluminum Co., Flint, Mich.
BALTIMORE Enamel & Novelty Co., Baltimore, Md.
BECKER, August, 247 Atlantic Ave., Boston, Mass.
BLACKINGTON & Co., V. H., Attleboro Falls, Mass.
CHANDLER Co., (The), 31 Taylor St., Springfield, Mass.
CHILDS, S. D. & Co., 200 So. Clark St., Chicago, Ill.
CROWE Metal Mfg. Co., Chicago, Ill.
DETROIT Rubber Stamp Co., 99 Griswold St., Detroit, Mich.
EASTWOOD Wire Mfg. Co., Belleville, N. J.
ENGLISH & Mersick Co., New Haven, Conn.
FINE, Horace E., Trenton, N. J.
GREACEN & Co., Walter, 12 Mechanic St., Newark, N. J.
MEYERCORD Co. (The), Chamber of Commerce, Chicago, Ill.
MORSE, C. H., & Son., 13 So. Water St., Rochester, N. Y.
MURDOCK Corporation, Boston, Mass.
MURDOCK, Jas., Jr., Co., 116 Opera Place, Cincinnati, O. (see page 45).
N. J. Aluminum Co., Newark, N. J.
NEW YORK Stencil Works, New York, N. Y.
QUINT, S. H., & Sons, 15 So. 4th St., Philadelphia, Pa.
REES, F. H., Steele Memorial Bldg., Elmira, N. Y.
ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.
ROGERS, C. E., 34 Beach St., Boston, Mass.
SMITH, R. H., Mfg. Co. (The), Springfield, Mass. (see page 53).
SPENCER'S Sons, I. S., Guilford, Conn.
STAFFORD Co., N., 67 Fulton St., New York.
TORREY Roller Bushing Works, Bath, Me.
TURNER Brass Works (The), Franklin & Michigan Sts., Chicago, Ill.
WADSWORTH Engraving Co., 21 W. Washington St., Springfield, O.
WALTER, N. C., & Sons, 194 William St., N. Y. City.

NICKEL-PLATING OUTFITS

HANSON & Van Winkle, 219 Market St., Newark, N. J.
ZUCKER, Geo., Co. (The), 605 W. 39th St. N. Y. City.
ZUCKER, Leavitt & Loeb, 526 W. 25th St., N. Y. City.

NIPPLES

CODMAN & Shurtleff, 13-15 Tremont St., Boston, Mass.
HARTFORD Machine & Screw Co., 476 Capitol Ave., Hartford, Conn.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
JUDD & Leland Mfg. Co., Clifton Springs, N. Y.
PARK City Brass Co., Springfield, Mass.
PARKER, E. N., Springfield, Mass.
PEET, R. J., Hamilton, N. Y.
SHRIMPTON Mfg. Co., Church St., N. Y. City.
STANDARD Spoke & Nipple Co., Torrington, Conn.
STEVENS & Co., New York, N. Y.
TILEY, Pratt & Co., Essex, Conn.
TOLEDO Metal Wheel Co., Toledo, O.
WIRE Goods Co. (The), Worcester, Mass.
YOUSE, E. S., Reading, Pa.

NUTS AND WASHERS (Lock)

ALLISON Mfg. Co., Philadelphia, Pa.
AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.
COLUMBIA Nut & Bolt Co., Bridgeport, Conn.
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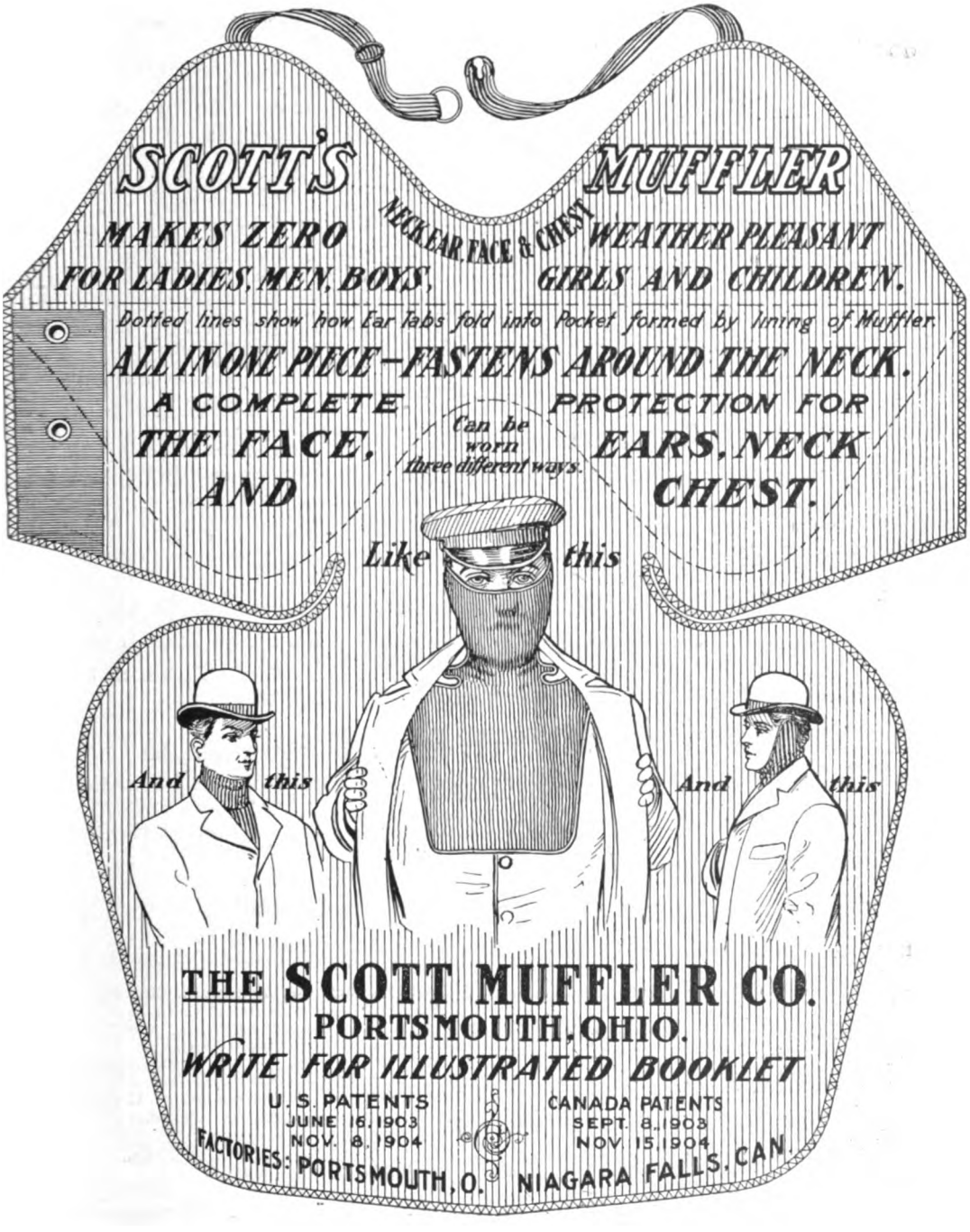

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NATIONAL Lock Washer Co., Newark, N. J.
POSITIVE Lock Washer Co., Newark, N. J.
SPIRAL Nut Lock Co., New York, N. Y.

ODOMETERS (See Indicators—Speed and Distance)

OILS

ALEXANDER & Co., H. T., 17 State St., N. Y. City.
ALLERTON Oil and Grease Co., 78 Broad St., N. Y. City (see page 41).
AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BESLY & Co., C. H., Chicago, Ill.
BORNE-Scrymser Co., Claremont, N. J.
BRUCK Solidified Oil Co., 256 Dover St., Boston, Mass.
CHAMPION Oil Co., 73 Jackson Blvd., Chicago, Ill.
CHESTERTON & Co., A. W., 64 India St., Boston, Mass.
CHILDS Co., G. B. (The), 499 Greenwich St., N. Y. City.
CLARK, E. W., & Co., 89 New Chambers St., N. Y. City.
COLE, G. W. Co., 141 Broadway, N. Y. City.
COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).
CURRY Oil & Supply Co., Boston, Mass.
DEARBORN Drug & Chemical Works, Chicago, Ill.
DIXON, Jos., Crucible Co., Wayne & Monmouth Sts., Jersey City, N. J.
EMERY Mfg. Co., 41 Main St., Bradford, Pa.
ENERGINE Co. (The), 833 Cuyahoga Bldg., Cleveland, O. (see page 85).
Excelsior Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FISKE Bros. Refining Co., 59 Water St., N. Y. City.
FORD & Dennen, 81 Journal Bldg., Boston, Mass. (see page 71).
GALENA Signal Oil Co., Franklin, Pa.
HALL, G. E., 211 Centre St., N. Y. City. (see page 100).
HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).
HAVEMEYER Oil Co., 78 Broad St., N. Y. City.
HOFFMAN Lubricating Oil Co., Binghamton, N. Y.
HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.
KANTER Co., R. J., 647 Water St., N. Y. City.
KELLOGG, E. H., Co., 243-244 South St., N. Y. City.
KEYSTONE Lubricating Co., 20th and Allegheny Aves., Philadelphia, Pa.
LUBRON Mfg. Co., 89 Broad St., Boston, Mass.
MACLEAN Oil & Supply Co., 463 Atlantic Ave., Boston, Mass.
MAGIE Bros., 9-11 No. Canal St., Chicago, Ill.
MARION Mfg. Co., Franklin, Pa.
METALLIC Lubricating Oil Co., Millersburg, Pa.
MILLER'S Sons, Wm. P., 100 Greenpoint Ave., Brooklyn, N. Y.
MONARCH Mfg. Co., Toledo, O.
MOORE, C. H., Oil Co., Logansport, Ind.
NATIONAL Cement & Rubber Mfg. Co. 3053-59 Monroe St., Toledo, O.
N. Y. & N. J. Lubricant Co., 15 Church St., N. Y. City (see page 39).
NYE, Wm. F., New Bedford, Mass.
O-U-T-O Co. (The), 19 Camfield St., Newark, N. J.
PENN Oil & Supply Co., Chicago, Ill.
PHILADELPHIA Grease Mfg. Co., Philadelphia, Pa.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
PULVER & Sons, Peter, N. Y. City.
RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.
RICHARDSON Lubricating Co., Quincy, Ill.
ROBINSON, Son & Co., Wm. C., Baltimore, Md.
ROYAL Lub. Oil Co., 116 Broad St., N. Y. City.
ROYAL Oil Co., 2 Platt St., N. Y. City.
SPEAR'S Sons Co., The Alden, 369 Atlantic Ave., Boston, Mass.
STANDARD Oil Co., 26 Broadway, N. Y. City.
STAR Lubricating Co., N. Y. City.
STERLING Oil Co., Emlenton, Pa.
SWAN & Finch Co., 151 Maiden Lane, New York.
UNDERHAY Oil Co., 275 Franklin St., Boston, Mass.
VACUUM Oil Co., Rochester, N. Y.
VALVOLINE Oil Co., 27 State St., Boston, Mass.
VISCOSITY Oil Co., Chicago, Ill.
WADHAMS Oil & Grease Co., Milwaukee, Wis.
WEBER Oil & Gaso. Co., 145 Kingston St., Boston, Mass.
WINN, F. R., Co., 147 Maiden Lane, N. Y. City.

OILS (Non-Fluid, Non-Liquid)

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).
N. Y. and N. J. Lubricant Co., 14 Church St., New York (see page 39).

OIL CANS

AKRON Mfg. Co., 927 S. Hight St., Akron, O.
AMERICAN Tube & Stamping Co., Bridgeport, Conn.
MAPLE City Mfg. Co., Monmouth, Ill.
NOERA Mfg. Co., Waterbury, Conn.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
ROCHESTER Automatic Oiler & Supply Co., 48 Andrews St., Rochester, N. Y.
SAFETY Oiler Co., 65 Nassau St., N. Y. City.
SCOVILL Mfg. Co., Waterbury, Conn.
SMITH, S. W., Keithsburg, Ill.
STODDARD, Haserick, Richards Co., 152 Congress St., Boston, Mass.

OIL CUPS

AURORA Automatic Mach. Co., Aurora, Ill.
BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

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LUNKENHEIMER Co. (The), Cincinnati, O.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
SHERWOOD Mfg. Co., Buffalo, N. Y.
STAR Brass Mfg. Co., 108-14 E. Dedham St., Boston, Mass.
TUCKER, W. W. & C. F., Hartford, Conn.
WINKLEY Co. (The), 66 State St., Hartford, Conn.

OIL GUNS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page 67).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
GLEASON-Peters Air Pump Co., 20 West Houston St., New York.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City. (see page 43).
MILLER, Charles E., 97 Reade St., N. Y. City. (Dealer and Jobber.)
N. Y. and N. J. Lubricant Co., 15 Church St., New York. (see page 39).
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).

OIL-HOLE COVERS

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.
BOWEN Mfg. Co., Canal St., Auburn, N. Y.
BOWN Machine Works, Battle Creek, Mich.
TUCKER W. W. & C. F., 302 Asylum St., Hartford, Conn.
WINKLEY Oiler Co., Hartford, Conn.

OIL PUMPS

BOSTON Auto Exch., 173-177 Berkeley St., Boston, Mass.
BOWEN Mfg. Co., Canal St., Auburn, N. Y.
DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.
ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.
GOULDS Mfg. Co. (The), Seneca Falls, N. Y.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 63).
MADISON-Kipp Mfg. Co., Madison, Wis.
MANZEL Bros. 46-48 Broadway, N. Y. City.
M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 57).
SHERWOOD Mfg. Co., Buffalo, N. Y.
SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.
STAR Brass Mfg. Co., 108-114 E. Dedham St., Boston, Mass.

PACKING

AMERICAN Steam Packing Co., Boston, Mass.
BOOTH, N. E., 261 39th St., Boookly n, N. Y. (see page 39).
BOSTON Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
CHESTERTON & Co., A. W., 64 India St., Boston, Mass.
CHICAGO Rawhide Mfg. Co., 75-77 Ohio St., Chicago, Ill.
EAGLE Oil & Supply Co., 104 No. Broad St., Boston, Mass.
GOULD Packing Co., 88 E. Cambridge St., E. Cambridge, Mass.
GREENE, Tweed & Co., 17 Murray St., N. Y. City.
JOHNS-Manville, H. W., Co., 100 William St., N. Y. City.
KEASBEY, Robert A., 83 Warren St., N. Y. City.
KEASBY-Mattison Co., Ambler, Pa.
N. J. Asbestos Co., Camden, N. J.

PAINTS

ACME White Lead & Color Works, Detroit, Mich.
BILLINGS-Chapin Co. (The), Cleveland, O.
BRANT, Randolph, 38 Cortlandt St., N. Y. City.
BUFFALO Enamel & Stain Co., Buffalo, N. Y.
DETROIT White Lead Works, Detroit, Mich.
DITZLER Paint & Color Works, 14 Baltimore Ave., West Detroit, Mich.
FELTON, Sibley & Co., 136-140 No. 4th St., Philadelphia, Pa.
FOWLER Elastic Enamel Paint Co., 589 W. Lake St., Chicago, Ill.
MASURY & Son, John W., 44-50 Jay St., Brooklyn N. Y.
PATTERSON-Sargent Paint Co., Cleveland, Ohio.
SCHRACK, C., & Co., 152 No. 4th St., Philadelphia, Pa.
SHERWIN-Williams Paint Co., 100 Canal St., Cleveland, O.
STANDARD Varnish Works, 29 Broadway, N. Y. City.
VALENTINE & Co., 257 Broadway, N. Y. City.

PANELS (Wood)

AMERICAN Veneer Co., Kenilworth, N. J.
BOTHNER Hardwood Moulding Co., 1945 Park Ave., N. Y. City.
DANN Bros. Co. (The), 80 Franklin St., New Haven, Conn.
OHIO Scroll & Lumber Co., Covington, Ky.

PANS (Drip)

DOVER Stamping & Mfg. Co., 355 Putnam Ave., Cambridge, Mass. (see page 43).

PATTERN MAKERS

AUTO Brass & Aluminum Co., Flint, Mich.
BALKWILL Pattern Works, 970 Hamilton St., Cleveland, O.
GARDAM & Son, Wm., 45 Rose St., N. Y. City.
HARTFORD Pattern & Model Co., Inc. (The), 14 Hicks St., Hartford, Conn.
HOPSON-Chapin Mfg. Co., New London, Conn.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
MEISEL Press & Mfg. Co., 944-948 Dorchester Ave., Boston, Mass.

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MODEL Pattern Works, Washington and Perry Sts., Buffalo, N. Y.
OLMSTEAD, H. B. Co., 87 Frankfort St., N. Y. City.
PARSELL & Weed, 129-131 W. 31st St., N. Y. City.
SCHMIDT & Mueller, 703 Winnebago St., Milwaukee, Wis.
STANDARD Pattern Works, Detroit, Mich.

PATTERN PLATES

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 45).

PIPE (Wrought Iron or Steel)

BYERS & Co., A. M., Pittsburg, Pa.
CONSHOHOCKEN Tube Co., Conshohocken, Pa.
CRANE Co., Chicago, Ill.
HARRISBURG Pipe & Pipe Bending Co., Harrisburg, Pa.
LA BELLE Iron Works, Steubenville, O.
MARK Mfg. Co., Evanston, Ill.
NATIONAL Tube Co., New York, N. Y.
READING Iron Co., Reading, Pa.
SHELBY Steel Tube Co., Pittsburg, Pa.
SOUTH CHESTER Tube Co., Chester, Pa.
SPANG, Chalfant & Co., Pittsburg, Pa.
UNITED STATES Tube & Iron Co., Pittsburg, Pa.
WESTERN Tube Co., Kewanee, Ill.
YOUNGSTOWN Iron, Steel & Tube Co., Youngstown, O.

PIPE COILS

A-Z Co. (The), 462 11th Ave., N. Y. City.
BLISS-Chester Co., Providence, R. I.
NATIONAL Pipe Bending Co., New Haven, Conn.
WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 75).

PISTON RINGS

DETROIT Trolley & Mfg. Co., Ltd., Detroit, Mich.
HAGUE & Co., 6123 Penn Ave., E. Pittsburg, Pa.

PLATINUM

AMERICAN Platinum Works, Newark, N. J.
BAKER & Co., 408 N. J. R. R. Ave. Newark, N. J.
CROSELMIRE Co., C. F., 251 N. J. R. R. Ave., Jersey City, N. J.
GOLDSMITH Bros. Chicago, Ill.

PLIERS AND NIPPERS (See Tools)

POLISHES (Body and Metal)

AMER. Metal Polish Co., 89 Winslow Ave., W. Somerville, Mass.
ARMSTRONG & Co., Kalamazoo, Mich. (see page opposite).
BRUNSWICK-Balke-Collender Co., 263 Wabash Ave., Chicago, Ill.
BUFFALO Enamel & Stain Co., 481 Ellicott Sq., Buffalo, N. Y.
BUFFALO Specialty Co. 3751-77 Ellicott St., Buffalo, N. Y.
COLE, G. W. Co., 143 Broadway, New York City.
EAGLE Mfg. Co., 383 Prospect St., Cleveland, Ohio.
HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).
HINDS & Coon, 126 Pearl St., Boston, Mass.
HOFFMAN, Geo. W., 551 E. Washington St., Indianapolis, Ind.
LORD Polish Co., F. T., Cambridge, Mass.
LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.
MAGIE Bros., 9-11 N. Canal St. Chicago, Ill.
MEXICAN Mfg. Co. (The), 239 S. Main St., Wichita, Kans.
NEWBERN Co., S. C., 430 Walnut St., Philadelphia, Pa.
PAUL, J. C., & Co., 59 Dearborn St., Chicago, Ill. (see page opposite).
RAIMES & Co., 50 Ferry St., N. Y. City (see page opposite).
RATH Mfg. Co., 1023 N. 3d St., Philadelphia, Pa.
SPEAR'S Sons Co., Alden, (The), 369 Atlantic Ave., Boston, Mass.

PORCELAIN (Insulators)

AMERICAN Lava Co., Chattanooga, Tenn.
BISHOP Gutta-Percha Co., 425 E. 25th St., New York City.
BRUNT Porcelain Works, G. F., E. Liverpool, O.
IMPERIAL Porcelain Works (The), Trenton, N. J.
MASSACHUSETTS Chemical Co., 170 Summer St., Boston, Mass.
PASS & Seymour, Syracuse, N. Y.
STANDARD China Works, Trenton, N. J.
STAR Porcelain Co., Trenton, N. J.
STATE Line Mfg. Co., Chattanooga, Tenn.
STEWART, D. M., Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.
SUN-LIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

PORTABLE CRANES AND HOISTS

FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.
NICHOLS, Wm. S., 253 Broadway, New York.

PUMPS (Fuel, Air)

AMERICAN Steam Pump Co., Battle Creek, Mich.
BOSTON Auto Exchange, 173 Berkeley St., Boston, Mass.
BRIDGEPORT Brass Co., Bridgeport, Conn.
CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.
CLEVELAND Faucet Co. (The), Cleveland, Ohio.
REASON Automatic Air Pump Co., Pontiac, Mich.
RUMSEY & Co., Seneca Falls, N. Y.
SHAFFER Machine & Mfg. Co. (The), 211 No. Calvert St., Baltimore, Md.
UNION Steam Pump Co., Battle Creek, Mich.

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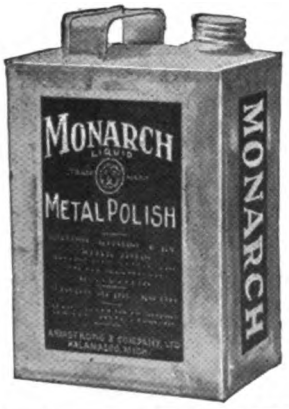

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BLAKE Steam Pump Co., 356 Arborway, Jamaica Plain, Mass.
KILBURN, Edwin, Spring Valley, Minn.
NOERA Mfg. Co., Waterbury, Conn.
OFELDT Motor Works, Nyack-on-the-Hudson, N. Y.
UNION Steam Pump Co., Battle, Creek, Mich.

PUMPS (Circulating)

AMER. Mach. & Mfg. Co., 970 Hamilton Ave., Cleveland, O.
AUTO Brass & Aluminum Co., Flint, Mich.
BIEDERMAN, C., 1555 Knox St., Cincinnati, Ohio.
BRENNAN Motor Co., Syracuse, N. Y. (see page 61).
BRISCOE Mfg. Co., 1431 Woodward Ave., Detroit, Mich. (see page opposite).
BROWN & Sharpe Mfg. Co., Providence, R. I.
BYRNE, Kingston & Co., Kokomo, Ind.
CONTINENTAL Engine Co., 277 Dearborn St., Chicago, Ill.
ESSEX Brass Co., G. B., Detroit, Mich.
GARVIN Machine Co., Spring & Varick Sts., N. Y. City.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 63).
LIPMAN, Carl E., Beloit, Wis.
LOBEE Pump & Machinery Co., 130-144 Terrace, Buffalo, N. Y.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
MILWAUKEE Motor Co., Milwaukee, Wis.
MOHLER & De Gress, Long Island City, N. Y.
N. Y. Gear Wks., Brooklyn, N. Y.
PALMER Bros., Cos Cob, Conn.
PELTON Gas. Eng. Wks., Lyons, Ia.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 57).
TORBENSEN Gear, Inc., Bloomfield, N. J.
UPTON Motor Co., Lebanon, Pa.
WESTERFIELD Motor Co. (The), Anderson, Ind.

PUMPS, OIL (See Oil Pumps)

PUMPS (Tire Inflators)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BONNETT, J. C., 43 Gregory St., New Haven.
BRIDGEPORT Gun Implement Co., 313 B'way, N. Y. City.
BROWN-Lipe Gear Co., Syracuse, N. Y. (see page 45).
CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.
CLEVELAND Faucet Co., Cleveland, O.
COLONIAL Brass Co. (The), 316-318 Seneca St., Cleveland, O.
CRANE, Wm. N., & Co., 1131 B'way, N. Y. City.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FERODOWILL Mfg. Co., 214 W. Indiana St., St. Paul, Minn.
GARAGE Equipment Co., 10 31st St., Milwaukee, Wis.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
GOULDS Mfg. Co. (The), Seneca Falls, N. Y.
HOLMES, Robert, & Bros., Danville, Ill.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 63).
JUDD & Leland, Clifton Springs, N. Y.
LEATHER & Brass Mfg. Co., Auburn, N. Y.
MACKIE-Lovejoy Mfg. Co., Chicago, Ill.
MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City. (see page 43).
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
MILLER Mfg. Co., Peekskill, N. Y.
MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.
NEW Departure Mfg. Co. (The), Bristol, Conn.
NOERA Mfg. Co., Waterbury, Conn.
PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
SKINNER & Skinner, 4133 Indiana Ave., Chicago, Ill.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 35).
STEVENS & Co., 99 Chambers St., N. Y. City. (Jobbers).
TEN EYCK Mfg. Co., F. E., 24 Water St., Auburn, N. Y.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
ULTRA Pump & Power Co., 122 Water St., Auburn, N. Y.
VAIL, R. E., 319 So. Main St., Mt. Vernon, O.
WIXON & Co., H. H., 3514 S. California Ave., Chicago, Ill.
WRAY Pump & Register Co., Rochester, N. Y.

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JUDD & Leland Mfg. Co., Clifton Springs, N. Y.
KELLOGG, G. W., 9 Belmont St., Rochester, N. Y.
PARK City Brass Co., Springfield, Mass.
PARKER, E. N., 293 Main St., Springfield, Mass.
STEVENS & Co., 99 Chambers St., N. Y City.
YOUSE, E. S., 46 N. 5th St., Reading, Pa.

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A-Z Co. (The), 462 11th Ave., N. Y. City.
BLISS Chester Co., 31 Mathewson St., Providence, R. I.
BRISCOE Mfg. Co., 1431 Woodward Ave., Detroit, Mich. (see page opposite).
BURNS, W. S., Manufacturing Co., New Haven, Conn.

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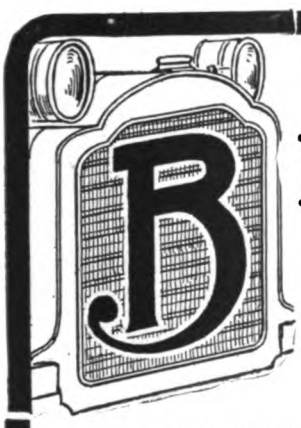

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HAYES Mfg. Co., 773 Bellevue Ave., Detroit. Mich.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 15).
KINSEY Mfg. Co., Dayton, O. (see back cover).
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
MAYO Radiator Co., New Haven, Conn.
STOLP Mfg. Co., Huron & Townsend Sts., Chicago, Ill. (see opposite page).
WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see opposite page).

RAILS

MURDOCK, Jas. Jr., & Co., 116 Opera Place, Cincinnati, O. (see page 45).
SMITH, Jos. N., & Co., Fourth & Porter Sts., Detroit, Mich.
RANDS Mfg. Co., Detroit, Mich.

RHEOSTATS

CUTLER-Hammer Mfg. Co. (The), Milwaukee, Wis.
MENCHEN, Jos. P., 1237 B'way, N. Y. City.
WAGNER Electrical Mfg. Co., St. Louis, Mo.

RIMS (Steel)

AMERICAN Tube & Stamping Co., Bridgeport, Conn.
BRYANT Steel Wheel & Rim Co., 454 Hayden Bank Bldg., Columbus, O.
CONTINENTAL Caoutchouc Co. (The), 43 Warren St., N. Y. City (Importers) (see page 59).
CRAMP, James, 85 Summer St., E. Boston, Mass.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
KELLY, Maus & Co., Lake St. Bridge, Chicago, Ill.
MIDGLEY Mfg. Co., Columbus, O.
STANDARD Welding Co. (The), 35 Cone St., Cleveland, O.
WESTON-Mott Co., Utica, N. Y. (see page 15).

RIMS (Wood)

DRAKE Mfg. Co., Milwaukee, Wis.
HAGERSTOWN Spoke & Bending Co., Hagerstown, Ind.
JONES & Co., Phineas, Newark, N. J. (see page 97).
K. & C. Mfg. Co., Henicker, N. H.
RASTETTER, Louis, & Son, Ft. Wayne, Ind.
TUCKER Bicycle Woodwork Co. (The), Sidney, O.

ROBES (Auto)

AMER. Buffalo Robe Co., Buffalo, N. Y.
CHASE Co., L. C., Boston, Mass. (see page 93).
CHICAGO Auto Robe Supply Co., 155-159 Market St., Chicago, Ill.
DAVIS Robe Co., Inc., 1307 Champlain Bldg., Chicago, Ill.
DRAPER Bros., Canton, Mass.
GAUSLER & Starr, Philadelphia, Pa.
MORAWETZ Co. (The), Milwaukee, Wis.
PARSONS Buggy Top Co., 135 So. Clinton St., Chicago, Ill.
PIONEER Woolen Mills, Beaufort St. and North Gratiot Ave., Detroit, Mich.
RILEY, Wm. B., & Son, 324-26 Market St., Philadelphia, Pa.
WESTERN Robe Co., Detroit, Mich.

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CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
RANDOLPH-Clowes Co., Waterbury, Conn.

RODS (Distance)

GARFORD Co. (The), Elyria, O. (see page 5).

RUBBER CLOTH

CARR, F. S., 74 Pearl St., Boston, Mass.
EMPIRE Rubber Mfg. Co., Trenton, N. J.
HARTFORD Rubber Works Co., Hartford, Conn.
MANUFACTURERS, Selling Co. (The), 1777 Broadway, N. Y. City.
MASS. Chemical Co., 170 Summer St., Boston, Mass.
MUTTY, L. J., 276 Devonshire St., Boston, Mass.
WESTERN Rubber Co., Goshen, Ind.

RUNNING GEARS

BORBEIN & Co., H. F., St. Louis, Mo.
GARFORD Co. (The), Elyria, O. (see page 5).
MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.
NEUSTADT Auto. & Supply Co., 826 S. 18th St., St. Louis, Mo.
SMITH Co., A. O., Milwaukee, Wis.
TOWANDA Motor Vehicle Co., Towanda, Pa.
TORBENSON Gear Inc. 615 Bloomfield Ave., Bloomfield, N. J.
VEHICLE Equipment Co., B'way & 50th St., N. Y. City.
WILSON Automobile Mfg. Co., Wilson, N. Y.

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CLIMAX Mfg. Co., East Hampton, Conn.
KROH, C. Z., & Co., 120 St. Clair St., Toledo, Ohio.
MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.
NEWARK Cycle Specialty Co., 26-28 Prospect St., Newark, N. J.
PERSONS Mfg. Co., Worcester, Mass.
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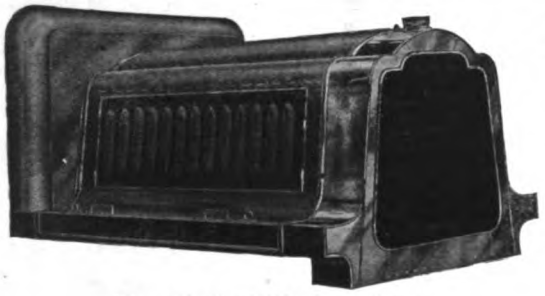
HARTFORD, CONN.

Patented in England, France and Belgium. Patents pending in United States



A "Detroit" Creation

DETROIT AUTO SPECIALTY CO.

MAKERS OF THE

"DETROIT"

Hoods, Radiators, Tanks, Mufflers, Hollow Metal Dashes, Flat Tube Radiators, Collapsible Hoods, etc.

12-14 Sherman St., - Detroit, Mich.

Patents Pending

Stolp Coolers

LIGHT BUT STRONG
SIMPLE BUT COMPLETE
WE MAKE NOTHING ELSE

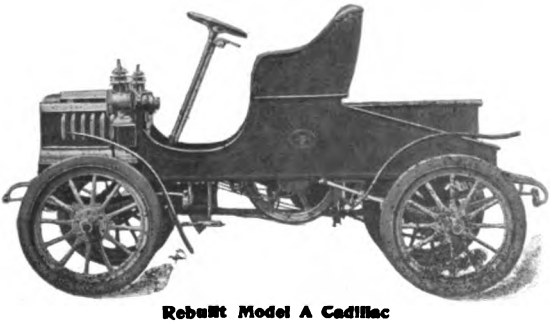
Stolp Manufacturing Co., Chicago

We Manufacture

outfits to modernize the '03 and '04 Ford and Cadillac automobiles.

Write for photo and booklets.

AUTO REBUILDING CO.,
215 N. Alabama St.,
Indianapolis, Indiana



Rebuilt Model A Cadillac

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SCREWS

ATLAS Bolt & Screw Co., Cleveland, O.
BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.
DETROIT Screw Works, Detroit, Mich.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
KIRK-Latty Co., Cleveland, O.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City. (see page 43).
NATIONAL Screw & Tack Co., Cleveland, O.
NEW Britain Hdw. Mfg. Co. (The), New Britain, Conn.
PENINSULAR Milled Screw Co., Detroit, Mich.
PROGRESSIVE Mfg. Co., Torrington, Conn.
UPSON Bolt & Nut Co., Cleveland, O.
WATERBURY Mfg. Co., Waterbury, Conn.
WESTERN Automatic Machine Screw Co. (The), Elyria, O.

SCREW MACHINE PRODUCTS

CHICAGO Screw Co., Chicago, Ill.
DETROIT Screw Works, Detroit, Mich.
HARTFORD Mach. Screw Co., Hartford, Conn.
ILLINOIS Screw Co., Chicago, Ill.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
NATIONAL Cycle Mfg. Co., Bay City, Mich.
PENINSULA Milled Screw Co., Detroit, Mich.
WORCESTER Mach. Screw Co., Worcester, Mass.

SEATS (Auto)

AMERICAN Veneer Co., Kenilworth, N. J.
AVERY Stamping Co., Cleveland, O.
BEAUDETTE & Co., J., Detroit, Mich.
CLIMAX Mfg. Co., East Hampton, Conn.
DANN Bros. Co. (The), 80-88 Franklin St., New Haven, Conn.
DAYTON Folding Tonneau Co., Dayton, O.
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
FRANTZ Body Mfg. Co. (The), Akron, O.
HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.
ITHACA Carriage Co., Ithaca, N. Y.
MICH. Auto. & Carriage Body Co., Detroit, Mich.
RATTAN Mfg. Co., New Haven, Conn.
WHIPPLE, R. W., Binghamton, N. Y.

SEATS (Dos-a-Dos)

HALLIDAY, C. A., Oneida, N. Y.
INDIANAPOLIS Dash Co., Indianapolis, Ind.
MESSMER, A. L. H., Indianapolis, Ind.
RANDS Mfg. Co., Detroit, Mich.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
WHIPPLE, R. W., Binghamton, N. Y.

SHELLS (Boiler, Copper)

HUNGERFORD Brass & Copper Co., New York, N. Y.
RANDOLPH-Clowes Co., Waterbury, Conn.

SHELLS (Boiler, Steel)

JANNEY, Steinmetz & Co., Drexel Bldg., Philadelphia, Pa.
PRESSED Steel Tank Co., Milwaukee, Wis.
STANDARD Welding Co., Cleveland, O.

SHOCK ABSORBERS

AMERICAN Shock Absorber Co., Easton, Pa.
AUTO Importing Co., 124 E. Quincy St., Chicago, Ill.
CHANEY Mfg. Co., A., Terre Haute, Ind.
DIEZEMANN Shock Absorber Co., 1311 Hudson St., Hoboken, N. J.
HARTFORD Suspension Co., 67 Vestry St., N. Y. City (see page opposite).
INDIANAPOLIS Bolster Spring Co., 107 S. Meridian St., Indianapolis, Ind.
KILGORE Auto Air Cushion Co., 46 Columbus Ave., Boston, Mass.
SUPPLEMENTARY Spiral Spring Co., 4528-4530 Delmar Ave., St. Louis, Mo. (see page opposite).

SOAPS (Special for Automobilists)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BAUM'S Castorine Co., Rome, N. Y.
CLEVELAND Oil Soap Co., 197 Lake Ave., Cleveland, O.
ERICKA Mfg. Co., Inc., Springfield, Mass. (see page 95).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill., (Dealers and Jobbers) (see page 47).
FISK Mfg. Co., Springfield, Mass.
FORD & Dennen, 81 Journal Bldg., Boston, Mass. (see page 71).
HOFFHEIMER Soap Co., 169 Jackson Blvd., Chicago, Ill.
HYDRO-Palm Mfg. Co., 22 Minott St., Boston, Mass.
JERGENS Co. (The), Andrew, Cincinnati, O.
KIRK & Co., Jas. S., Chicago, Ill.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
ROME Soap Mfg. Co., Rome, N. Y.
SKAT Mfg. Co., Hartford, Conn.
STANLEY, John T., 650 W. 30th St., N. Y. City.
UTILITY Co. (The), 233 Greenwich St., N. Y. City.
WALTKE & Co., Wm., Grand and 2d St., St. Louis, Mo.

SPARK COILS

AMERICAN Coil Co., Foxboro, Mass.
AMERICAN Machine Mfg. Co., East Braintree, Mass.
AUTOCOIL Co. (The), 132 7th St., Jersey City, N. J.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BYRNE-Kingston Co., Kokomo, Ind.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 81).

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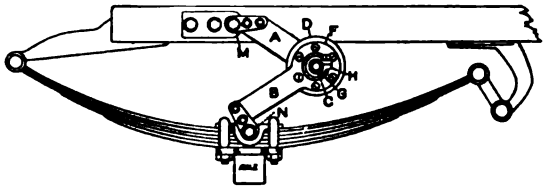
TRUFFAULT-HARTFORD SUSPENSION

Cars Under 1500 lbs. $40
(4 suspensions)



Cars Over 1500 lbs. $60
(4 suspensions)

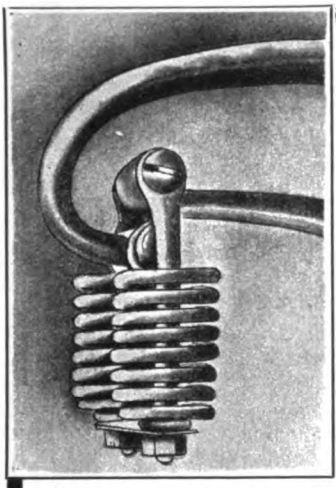
When ordering your 1905 car INSIST that it be equipped with this SHOCK ABSORBER, which

Enables cars to proceed at highest speed over all obstructions.
Doubles the life of the tires. Prevents lost traction.
Increases the speed. Absolutely prevents breaking of springs.
Makes cobble-stones and rough roads seem like asphalt; and is
Endorsed by all prominent Engineers.
Adopted by MERCEDES, PEUGEOT, RICHARD-BRASIER, F. I. A. T., DECAUVILLE, GEORGE N. PIERCE CO.

Whether you own the lightest runabout or the heaviest touring car you cannot afford to be without it.
Now is the best time to equip your car.
Applied at our factory, 390 Hudson Street, for $10.00 additional

HARTFORD SUSPENSION CO.,

Edward V. Hartford, President.
69 Vestry Street, New York City.



SUPPLEMENTARY SPIRAL SPRING

PRAISED BY USERS

Everywhere for their comfortable riding qualities

CITY OF ST. LOUIS, FIRE DEPARTMENT, CHIEF'S OFFICE
Supplementary Spir al Spring Co., City: May 2, 1905.

Gentlemen—Your Supplementary Springs are giving entire satisfaction on the automobile used by myself in responding to fire calls. The most noticeable effect is that they permit my car to maintain its speed over car crossings and granite block streets with full comfort to the occupants. Yours truly, (Signed) C. E. SWINGLEY,
Chief Fire Department.

E. W. SAUNDERS, M.D., 3003 Lafayette Ave., St Louis, Mo.
Supplementary Spiral Spr'ng Co., City: Nov. 9, 1904.

Gentlemen—After a thorough test of your Supplementary Springs which were applied to my Cadillac several weeks ago, I can pronounce them an unqualified success. The riding qualities of the carriage are immeasurably better, and there has been no loss of horizontal rigidity. Very truly yours, E. W. SAUNDERS.

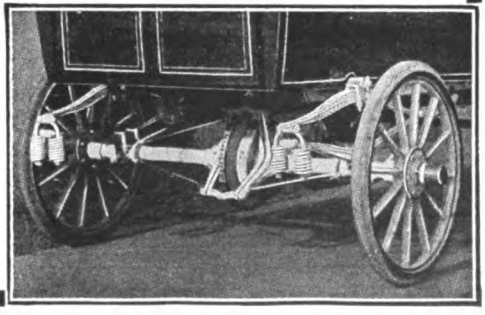
They absorb all Jars and Jolts — Prolong Wear of Tires
Lengthen Life of Engine — Nothing to Break or Wear Out

INSIST on your cars being so equipped

They adjust to any make car and add to its durability, speed and riding qualities as nothing else can. Cost price refunded if springs prove unsatisfactory after thirty days' use.

Write for particulars and prices

Supplementary Spiral Spring Co.
4527 DELMAR AVENUE, - ST. LOUIS, MO.



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DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co., Braintree, Mass.
DUPLEX Coil Co., Fond-du-Lac, Wis.
ELBRIDGE Electrical Co., Elbridge, N. Y.
ELECTRICAL Appliance Co., Cincinnati, O.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.
ENGLAND, A. E., Amesbury, Mass.
EUREKA Mfg. Co., St. Paul, Minn.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.
FROST Mfg. Co., 210 1-2 S. High St., Columbus, O.
GEEN Electric Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
HANFORD, Geo. S., 1018 Amer. Trust Bldg., Cleveland, O.
HARDY Co., R. E., New York, N. Y.
HAWES Electric Co., 137 State St., Springfield, Mass.
HEINZE Electric Co., Lowell, Mass. (see page 83).
HERZ & Co., Elm and Marion Sts., New York City (see page 39).
INDUCTION Coil Co., Milwaukee, Wis.
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
MANHATTAN Elec. Supply Co., N. Y. City.
NATIONAL Coil Co., 115 Madison Ave., Lansing, Mich.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 89).
NEW York Coil Co., 52-54 Park Pl., N. Y. City.
NOXON, C. Per Lee, 500 E. Water St., Syracuse, N. Y.
NUNGESSER Electric Battery Co. (The), 27-33 King St., Cleveland, O.
PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 83).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
ROCHE, Wm., 52 Park Pl., N. Y. City.
RUBAY, Leon, 136 W. 38th St., New York (Importers).
RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.
SCHUG Electric Co. (The), Detroit, Mich.
SEIDLER-Miner Electric Co., Detroit, Mich. (see page 37).
SPLITDORF, C. F., 27 Vandewater St., New York (see page 81).
TRITT Electrical Mfg. Co., 120 W. Division St., South Bend, Ind.
U. S. Coil Co., Jersey City, N. J.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WESTERN Elec. Co., Chicago, Ill.
WILLIAMS, E. Q., 533 S. Clinton St., Syracuse, N. Y. (see page 59).

SPARK GAPS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
FUNKE, A. H., 83 Chambers St., N. Y. City.
HERZ & Co., Elm and Marion Sts., New York City (see page 39).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.

SPARK PLUGS

ALBRIGHT Mfg. Co., Inc., Columbus, Ga.
AMERICAN Coil Co., Foxboro, Mass.
AMERICAN Machine Mfg. Co., East Braintree, Mass.
ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.
ATLANTIC Motor Supply & Screw Co., 48 Binford St., Boston, Mass.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTOMOBILE Supply Co., 1339 Michigan Ave., Chicago (Importers).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BYRNE, Kingston Co., Kokomo, Ind.
CHARTER Mfg. Co., 59 Clark St., Chicago, Ill.
CANEDY, Earl, Chicago Heights, Ill. (see page opposite).
CLARK, E. E., & Co., Canton, O.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CLIMAX Igniter Co., Amesbury, Mass.
CONSTANT Spark Plug Co. (The), 135 Oliver St., Boston, Mass.
DAYTON Electrical Mfg. Co. (The), Dayton, O.
DE LUXE Mfg. Co., Buffalo, N. Y.
DOHERTY & Fowler, Binghamton, N. Y.
DOW Portable Electric Co., Braintree, Mass
ELBRIDGE Electrical Mfg. Co., Elbridge, N. Y.
ENGLAND, A. E., Amesbury, Mass.
EUREKA Mfg. Co., St. Paul, Minn.
EXCELSIOR Spark Plug Co., Cleveland, O.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FAIRBANKS Co., Broome & Elm Sts., N. Y. City.
FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.
FOURFORONE Spark Plug Co., 23 E. Lake St., Chicago, Ill.
GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
HARDY Co., R. E., 225 West Broadway, N. Y. City.
HERZ & Co., Cor. Elm and Marion Sts., N. Y. City (see page 39).
HOLCOMB & Co., 18 E. 28th St., N. Y. City.
ILLINOIS Roofing & Supply Co., 23 Lake St., Chicago, Ill.
INDUCTION Coil Co., Milwaukee, Wis.
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
LIPMAN, Carl E., Beloit, Wis.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 57).
MEZGER, C. E., 203 W. 80th St., N. Y. City.
MILLER Mfg. Co., Peekskill, N. Y.
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
MOSLER, Arthur, 1679 B'way, N. Y. City.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 89).
OAKES & Dow Co., 40 Sudbury St., Boston, Mass.
ORSWELL Ignition Co. (The), 102 Pearl St., Boston, Mass.
PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 83).
POPE Mfg. Co., Hartford, Conn. (see page 51).
PRIMARY Spark Plug Mfg. Co., 416 Commercial Nat'l Bank Bldg., Chicago, Ill.

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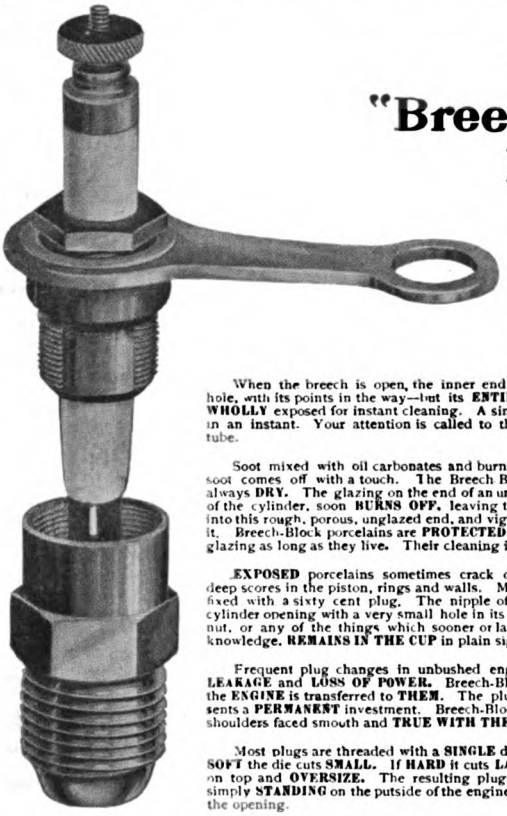

The "Breech-Block" Plug

Four *Breech-Block* *plugs can be opened, cleaned and closed in* **sixteen** *seconds by the watch.*

When the breech is open, the inner end of the porcelain—not its tip looking out of a hole, with its points in the way—but its **ENTIRE INNER SURFACE** for over **ONE** inch is **WHOLLY** exposed for instant cleaning. A single twist with a piece of waste makes it white in an instant. Your attention is called to the **INCH.** The inch is on the **OUTSIDE** of the tube.

Soot mixed with oil carbonates and burns into the glaze and is hard to remove. **DRY** soot comes off with a touch. The Breech Block chamber excludes all oil. Its tube is always **DRY.** The glazing on the end of an unprotected tube, exposed to the intense heat of the cylinder, soon **BURNS OFF,** leaving the porous core **EXPOSED.** Soot and oil burn into this rough, porous, unglazed end, and vigorous cleaning can only **PARTIALLY** remove it. Breech-Block porcelains are **PROTECTED** from the intense heat. They **RETAIN** their glazing as long as they live. Their cleaning is fun.

EXPOSED porcelains sometimes crack off and drop down into the cylinder, cutting deep scores in the piston, rings and walls. More than one sixty dollar cylinder has been fixed with a sixty cent plug. The nipple of the Breech-Block forms a **CUP** down in the cylinder opening with a very small hole in its base. A broken tube tip, a washer, a thumb nut, or any of the things which sooner or later drop into the cylinder with or without your knowledge, **REMAINS IN THE CUP** in plain sight. Removal is easy

Frequent plug changes in unbushed engine openings cause **WEAR** on the threads, **LEAKAGE** and **LOSS OF POWER.** Breech-Block nipples become **FIXTURES.** All wear on the **ENGINE** is transferred to **THEM.** The plug is made to outwear the engine and represents a **PERMANENT** investment. Breech-Block Metrics have **LARGE, GENEROUS** packing shoulders faced smooth and **TRUE WITH THE THREADS.**

Most plugs are threaded with a **SINGLE** die in a single operation If the bar of steel is **SOFT** the die cuts **SMALL.** If **HARD** it cuts **LARGE** and the threads are **ROUGH** and **FLAT** on top and **OVERSIZE.** The resulting plugs barely enter their openings and appear to be simply **STANDING** on the putside of the engine with their sparking tips at the **MOUTH** of the opening.

Breech-Block plugs are threaded with **ROUGHING** and **FINISHING** dies in **TWO** separate operations. Their threads are **FULL** and **SMOOTH** and **STANDARD,** and they enter the cylinder to the **PROPER DEPTH**—every one of them. They are made from **SELECTED** stock. Hard bars are used for other purposes without loss to the maker. Breech-Blo k porcelains are held **FLOATING** between flexible gaskets. They are touched by no unyielding metal walls **BOTH** stuffing nut threads are heavily nickeled and cannot lock with rust even after long disuse. They are always free, and upon loosening them the tubes **DROP** out and the gaskets **DROP** with them. No digging and driving, and a replacement requires less than a minute.

Porcelains from every available high grade porcelain manufacturer have been tried out. Some have been sterling, others uncertain. The porcelain in the 1906 Breech-Block is the result of **ELIMINATION.** Exhaustive tests have proven the chambered plug to have firing qualities superior to the open end bent wire type, but a full stock of the latter is carried for the benefit of those who do not appreciate the advantages of the former. Upon replacing an ordinary set of plugs with Breech-Blocks it is necessary to **RETARD** the spark to prevent an increase in engine speed. This is easily proven food-thought for those who consider all good plugs as having the same firing values.

A drop of gasoline placed in the chamber of the Breech-Block and the spark passed will cause a strong explosion within and the **STREAM** of fire which **SHOOTS** out of the opening will ignite a gas jet some distance away This effect might not be so pronounced if there were **OTHER** large openings in the chamber walls. This test gives some idea of the ignit ng power of the stream of fire which shoots deep down into the mixture at each explosion. On engines which throw the slightest amount of oil on the tubes of the ordinary open plug, the oil collects into a **SOOTY DROP** between the sparking tips after the engine has been at rest, which can only be broken by removing the plug or agitating the contents of the cylinder by **VIGOROUS CRANKING.**

With a Breech-Block, the **SLIGHTEST** movement of the piston causes a transfer of gas through the spark gap opening into the chamber, instantly breaking any film of oil which may have collected there. Porcelains having their electrodes **CEMENTED** within them must be entirely replaced when broken. Breech-Block porcelains have easily **REMOVABLE** electrodes, which last indefinitely, and porcelains **ONLY** need replacing. The joint between the Breech and Block is made on a thick, solid, soft copper gasket, pressed tightly in place in a recess and seat ground in place It is seated at 45 degrees, and will stand 2000 pounds without showing a leak. It is the standard hydraulic press connection, fitted with a breech-block

The Breech-Block plug is sold at a price which permits its maker to employ skilled mechanics in its manufacture, to put the best of everything which is possible to buy into it, and to turn out an interchangeable product with refinements which have never been known before to plug making. Every particle of the idea of cheapness has been left out of it. It has been listed in the 1906 catalogs of nearly every jobber in America, without soliciting. Standard, Metric and Winton plugs are carried in regular stock Bushings can be furnished to fit any engine to order. Metric to Standard, Standard to Knox, and Standard to Autocar, are kept in stock.

"**FOUR** *Breech-Blocks can be opened, cleaned and closed in* **SIXTEEN** *seconds by the watch*"

Seven patents pending in U. S. and Europe.

Postpaid,
$2.50

EARL CANEDY,
2012 West Avenue, Chicago Heights,
U. S. A.

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RAJAH Auto. Supply Co., 140 Washington St., New York.
ROCHE, Wm., 52 Park Pl., N. Y. City.
RUBAY, Leon, 136 West 38th St., New York (Importer).
SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 37).
SPLITDORF, C. F., 27 Vandewater St., New York (see page opposite).
THURSTON Mfg. Co. (The), 356 E. 57th St., Chicago, Ill.
TRITT Electrical Mfg. Co., 114-120 W. Division St., South Bend, Ind.
U. S. Coil Co., 60 Harrison Ave., Jersey City, N. J.

SPARKING POINTS

AMERICAN Platinum Wks., Newark, N. J.
BAKER & Co., 408 N. J. R. R. Ave., Newark, N. J.
BOKER & Co., Herman, 101 Duane St., N. Y. City.
CROSELMIRE, Chas. F., Co., 251 N. J. R. R. Ave., Newark, N. J.

SPARK TIMING DEVICES

ALTEMUS & Co., C. L., 15th & Market Sts., Philadelphia, Pa.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTO Instrument Co., 228 No. 4th St., Phila., Pa.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BEMUS, Alton T., 294 Washington St., Boston, Mass.
BURTT Mfg. Co., Kalamazoo. Mich.
CAMBRIA Mfg. Co. (The), 41 Columbus Ave., Boston, Mass.
DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co., Braintree, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 47).
HEINZE Electric Co., Lowell, Mass. (see page 83).
HERZ & Co., Elm and Marion Sts., New York City (see page 39).
ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
POWELL Mfg. Co. (The), Clinton, N. Y.
UNCAS Specialty Co., 31 Shipping St., Norwich, Conn.
WESTERN Motor Co., Logansport, Ind.

SPEED INDICATORS (See Indicators, Speed and Distance)

SPOKES (Wire)

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
GARFORD Co. (The), Elyria, O. (see page 5).
NON-Corrosive Metal Co., 39 Pitts St., Boston, Mass.
PACKER Cycle Co., Reading, Pa.
POPE Mfg. Co., Hartford, Conn. (see page 51).
STANDARD Spoke & Nipple Co., Torrington, Conn.
TILEY-Pratt & Co., Essex, Conn.
TOLEDO Metal Wheel Co., Toledo, O.
WIRE Goods Co. (The), Worcester, Mass.
WOLFF, R. H., & Co., Ltd., N. Y. City.

SPRINGS (Leaf)

ANSTED Spring & Axle Co., Connersville. Ind.
ARMSTRONG Mfg. Co. (The), J. B., Flint, Mich.
CLEVELAND-Canton Spring Co., Canton, Ohio.
COOPER, Geo., & Co., Cleveland, O.
DELANEY, D., & Son, Liberty and Hamilton Sts., Newark, N. J.
DETROIT Steel Products Co., 87-89 Fort St., E., 133-141 Antoine St., Detroit, Mich.
GARDEN City Spring Works, Chicago, Ill.
HENRY Spring Co., Winsted, Conn.
HESS-Pontiac Spring and Axle Co., Pontiac, Mich.
KALAMAZOO Spring & Axle Co., Kalamazoo, Mich.
KEYSTONE Spring Wks., 13th and Buttonwood Sts., Phila., Pa.
LEE, Cowan & Bowen, Canal St. and No. Crouse Ave., Syracuse, N. Y.
LEWIS Spring and Axle Co., Jackson, Mich.
PALMER, Jos., 333 Rutherford Ave., Boston, Mass.
PENN Spring Wks., Baldwinsville, N. Y.
ROWLANDS, Wm. & Harvey, Frankford, Phila., Pa.
RYMAN Co., K. L., 164 Market St., Newark, N. J.
SHULER, Davis W., & Son, Amsterdam. N. Y.
SPRING Perch Co., 232 John St., Bridgeport, Conn.
TROY Spring Works, 394-96 Congress St., Troy, N. Y.
TUCK Mfg. Co., Brockton, Mass.
TUTHILL Spring Co., 215 W. Polk St., Chicago, Ill.

SPRINGS (Cushion and Machinery)

AMERICAN Steel & Wire Co., Chicago, Ill.
CARY Spring Works, 240 W. 29th St., N. Y. City.
CLEVELAND Wire Spring Co., Cleveland, Ohio.
D'ARCY Spring Co., 115 Main St., Kalamazoo, Mich.
GIBSON Co., Wm. D., 25 No. Clinton St., Chicago, Ill.
HEBB, George A., Newark, N. J.
JACKSON Cushion Spring Co., Water St., Jackson, Mich. (see page 37).
LOUNSBERY & Sons, G. H., 214-216 E. 4th St., Cincinnati, O.
MILLER & Van Winkle, 18 Bridge St., Brooklyn, N. Y.
MORGAN Spring Co., Worcester, Mass.
NATIONAL Spring & Wire Co., Albion, Mich.
RAYMOND Mfg. Co., Corry, Pa.
STAPLES & Hanford, Newburg, N. Y.
THOMPSON, F. H., 36-38 Elm St., Portland, Me.
WINDSOR Spring Co. (The), Kenosha, Wis.

SPRINGS (Supplementary) (See Shock Absorbers)

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Sensible, wideawake automobile dealers and motorists are studying to-day not so much how to get cheaper coils, but WHERE to get them BETTER than ever heretofore produced.

As a sure and powerful lever to that end, they are using "Connecticut Coils" for ignition, and increasing the efficiency of their automobiles and insuring a safeguard against ignition troubles that has been heretofore impossible.

Let us tell you all about the new "Connecticut Coil" that makes the best and hottest spark of any Coil made. It will cost only a postal to inquire and may result in a tremendous saving in money and trouble.

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Two instruments in one at the price of one. The most accurate, handy and complete storage battery and dry cell tester made. Handsomely finished, built with the care of a watch.

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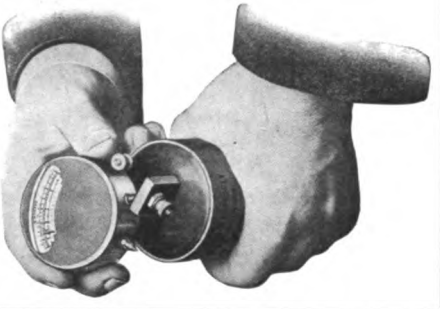
MERIDEN, CONN.



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Can be depended upon.

That is one of the reasons for their popularity. Most of the races won and records broken were with cars equipped with Splitdorf Coils.

This proves their superiority.

Splitdorf Coils, Commutators, Spark Plugs and Ignition Cables are all carefully constructed. Only the highest grade material enter into their manufacture.

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ADAPT Machinery Co. (The), 17th St. and Wabash Ave., Chicago, Ill.
BALDWIN Chain & Mfg. Co., Worcester, Mass.
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BOSTON Gear Wks., 152 Purchase St., Boston, Mass.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
CULLMAN Wheel Co., 1024 Dunning St., Chicago, Ill. (see page 49).
FORG, Peter, Park St., Somerville, Mass.
GARFORD Co. (The), Elyria, O. (see page 5).
GRANT Gear Wks., 6 Portland St., Boston,
HARRIS, E. T., 531 W. 15th St., Chicago, Ill.
NELSON, A., Mfg. Co., 67-69 So. Canal St., Chicago, Ill.
PARISH & Bingham Co., Hamilton St., Cleveland, O.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 35).
SPRINGFIELD Drop Forging Co., 187 Pratt St., Buffalo, N. Y.

STAMPINGS

BAY State Stamping Co., Worcester, Mass.
CROSBY Co. (The), 185 Pratt St., Buffalo, N. Y.
DAVIS & Buxton, Worcester, Mass.
DIAMOND Stamped Ware Co., Detroit, Mich.
EATON, Cole & Burnham, 253 B'way, N. Y. City.
FORG, Peter, Park St., Somerville, Mass.
FORSYTH Mfg. Co., Buffalo, N. Y.
GLOBE Mach. & Stamping Co., Cleveland, O.
HANCOCK Inspirator Co., 85 Liberty St., N. Y. City.
JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.
KELLY & Jones Co. (The), Greensburg, Pa.
MATHEWS, H. A., Mfg. Co., Seymour, Conn.
MILWAUKEE Automatic Machine Co., Milwaukee, Wis.
PARISH & Bingham Co. (The), Hamilton, St., Cleveland, O.
PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.
SCHAEFER & Bundenberg Mfg. Co., Brooklyn, N. Y.
SENSITIVE Governor Co., 140 South Capitol Ave., Indianapolis, Ind.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIDNEY Mfg. Co., 5300 Armour Ave., Chicago, Ill.
SIMMONS, John, Co., 101 Centre St., N. Y. City.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.
STAR Brass Mfg. Co., 108 E. Dearborn St., Boston, Mass.
WATSON, H. L., Co., Erie, Pa.
WORCESTER Pressed Steel Co., Worcester, Mass.

STEEL

AMERICAN Sheet Steel Co., 24 State St., N. Y. City.
AMER. Tube & Stamping Co., Bridgeport, Conn.
BASSETT & Presley Co., Cleveland, O.
BOKER & Co., Herman, 101 Duane St., N. Y. City.
BROOKEBANK, Mullin & Co., 409 Commerce St., Phila., Pa.
CRUCIBLE Steel Co. of America, Empire Bldg., Pittsburg, Pa.
ELIOTT-Blair Steel Co., Taylor and Mercer Sts., New Castle, Pa.
FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.
FINISHED Steel Co. (The), Youngstown, Ohio.
JONES & Laughlins Co., Pittsburg, Pa.
LUKENS Steel Co., Coatsville, Pa.
MORRIS & Bailey Steel Co., Ger. Nat'l. Bank Bldg., Pittsburg, Pa.
NASH, Geo., & Co., 224 Pearl St., N. Y. City.
PARDEE, C., Wks. (The), Perth Amboy, N. J.
REPUBLIC Iron & Steel Co., Stock Exchange Bldg., Chicago, Ill.
ROYAL Metal Steel Co., Inc., 17 Bridge St., N. Y. City.
STANDARD Gauge Steel Co., Beaver Falls, Pa.
SUPERIOR Steel Co., Carnegie, Pa.
UNION Drawn Steel Co., Beaver Falls, Pa.
WARD, Edgar T. & Sons, 25 Purchase St., Boston, Mass.

STEEL SHAFTING

CUMBERLAND Steel Co., Cumberland, Md. Pa.
PITTSBURG Steel Shafting Co., Braddock,
UNION Drawn Steel Co., Beaver Falls, Pa.

STEEL STAMPS AND STENCILS

CHANDLER Co. (The), 31 Taylor St., Springfield, Mass.
CHILDS, S. D., & Co., 200 So. Clark St., Chicago, Ill.
MURDOCK, Jr., Co., Jas., 116 Opera Pl., Cincinnati, O. (see page 45).
QUINT, S. H., & Sons, 15 S. 4th St., Philadelphia, Pa.
ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.
SMITH Mfg. Co., R. H. (The), Springfield, Mass. (see page 53).

STEEL WOOL

AMERICAN Steel Wool Co., 451-453 Greenwich St., N. Y. City.
BUEHNE Steel Wool Co. (The), 93 Nassau St., N. Y. City.

STEERING CHECKS

GENERAL Electric Co., Schenectady, N. Y.
MILNE, Frank, Everett, Mass.
SMITH, E. L., 43 Columbus Ave., Boston, Mass.
WAUGH, Chas., & Co., 856-64 Main St., Cambridge, Mass.

STEERING KNUCKLES

AMERICAN Ball Bearing Co., Cleveland, Ohio.
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.

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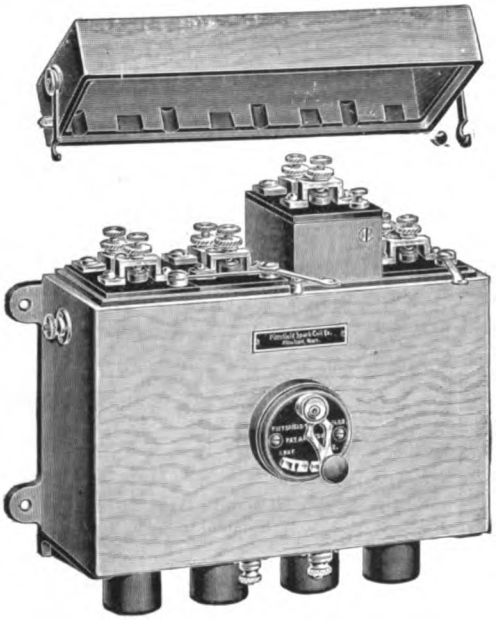

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are the best on the market.

A little higher in price, but superior in quality; made in dash and plain boxes for one, two, three and four cylinder.

Jewel Mica Spark Plugs are known for their intrinsic value all over the United States. Higher in price than any other, but worth twice as much.

PITTSFIELD Timers and Switches are proof against short circuit and are absolutely reliable. We guarantee a sure contact under any conditions.

Send for Catalogues and prices; also two-cent stamp for our Booklet on the care of Coils and Plugs.

Stop your Ignition troubles by using PITTSFIELD GOODS.

See our exhibit at the New York Show.

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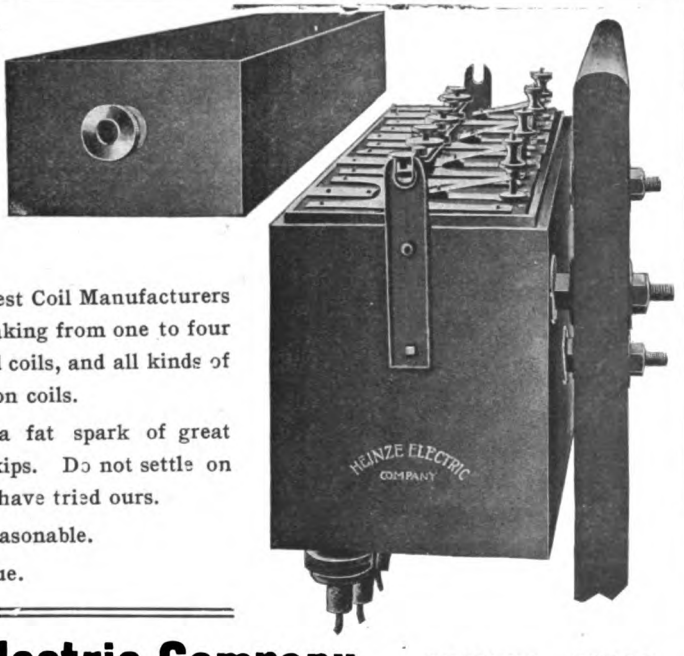

We are the Largest Coil Manufacturers in the Country, making from one to four cylinder dash board coils, and all kinds of high and low tension coils.

Our coil gives a fat spark of great frequency, never skips. Do not settle on any coil until you have tried ours.

Our prices are reasonable.

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VANDERBEEK Tool Wks., Hartford, Conn.

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AMER. Wood Rim Co., Bradford, Pa.
AUTO. Brass & Aluminum Co., Beach & Mill Sts., Flint, Mich.
BROWN Mach. Co., James, Pawtucket, R. I.
BYRNE, Kingston & Co., Kokomo, Ind.
CENTAUR Motor Vehicle Co., 59 Franklin St., Buffalo, N. Y.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia Pa.
GARFORD Co. (The), Elyria, O. (see page 5).
GOERSS, Herman, 162 Russell Ave., Cleveland, O.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
RASTETTER & Son, Ft. Wayne, Ind.
WARNER Gear Co., Muncie, Ind.

STEPS

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BLAKESLEE Forging Co., Plantsville, Conn.
CUSHING, J. M., Jamestown, N. Y.
DRUEN, B. D., 71 Hamilton St., New Haven, Conn.
KELSEY & Co., New Haven, Conn.
RAILWAY Appliance Co., Old Colony Bldg., Chicago, Ill. (see page 59).
RUBBER Step Co., Exeter, N. H.
SMITH, H. D., & Co., Plantsville, Conn.
STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.
WESTERN Automatic Machine Screw Co., (The), Elyria, O.
WING Co., The Chas., Amesbury, Mass.

STORM SHIELDS (See Aprons, Storm)

STRAINERS (Gasoline)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
KAUFMANN, Chas., 45 So. Main St., Oshkosh, Wis.

STUDS—(See Screw Mach. Products)

SUPPLIES (Dealers and Jobbers)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).
BECKLEY-Ralston Co., Michigan Ave., Chicago, Ill. (see page 11).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 47)
POPE Mfg. Co., Hartford, Conn. (see page 51).

SWITCHES (Electric)

AMERICAN Coil Co., Foxboro, Mass.
AUTO Lock Co., 6549 Minerva Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
B. &. J. Mfg. Co., 86 E. 34th St., Chicago, Ill.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BYRNE, Kingston & Co., Kokomo, Ind.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 81).
DOW Portable Electric Co., Braintree, Mass.
EDWARDS & Co., New York, N. Y.
ELDREDGE Elec. Mfg. Co., Springfield, Mass. (see page 13).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
GOEBEL, F. A., Marietta, O.
HART Mfg. Co., Hartford, Conn.
HART & Hegeman Mfg. Co., Hartford, Conn.
HERZ & Co., Elm and Marion Sts., New York City (see page 39).
McKIBBIN Mfg. Co., South Norwalk, Conn.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PARKER, Henry F., 127 N. Fullerton Ave., Montclair, N. J.
PEERLESS Machine Co., 126 Miami Ave., Detroit, Mich.
SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 37).
SPECIALTY Mfg. Co., South Norwalk, Conn.
SPLITDORF, C. F., 27 Vandewater St., New York (see page 81).
TRUMBULL Electric Mfg. Co., Plainville, Conn.
WESTERN Electric Co., 259 So. Clinton St., Chicago, Ill.

TACHOMETERS (See Indicators, Speed and Distance)

TANKS

AVERY Stamping Co., Cleveland, O.
A-Z Co. (The), 462 11th Ave., N. Y. City.
BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BOWSER & Co., S. F., Ft. Wayne, Ind.
BOYD, James, 73 39th St., Brooklyn, N. Y.
BRISCOE Mfg. Co., 1431 Woodward Ave., Detroit, Mich. (see page 73).
DETROIT Auto. Specialty Co., 12-14 Sherman St., Detroit, Mich. (see page 75).
DIAMOND Stamped Ware Co., Detroit, Mich.
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., New York, N. Y.
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HOLMES, Robert, & Bros., Danville, Ill.
INTERNATIONAL Non-Explosive Tank Co., 140 Nassau St., New York.
IRONCLAD Mfg. Co., Brooklyn, N. Y.
JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 15).

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TRADE MARK.

THE NEW FUEL

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40 TO 80% MORE MILEAGE PER GALLON.
MORE POWERFUL.
NON-CARBONIZING.
ABSOLUTELY HOMOGENEOUS
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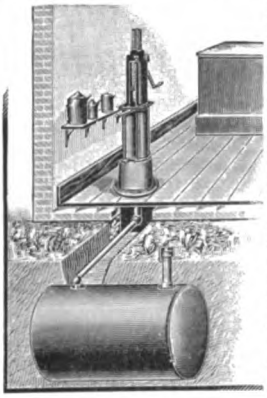
THE ENERGINE CO.,
831 CUYAHOGA BLDG., CLEVELAND, O.

THE NATIONAL GASOLINE TANKS

The National Long Distance Gasoline Storage Outfit which permits of placing the supply tank under ground, the pump being inside the building. In perfecting this outfit we have observed to the letter the rules of the underwriters' Laboratories, and can recommend it to be the safest and most economical way of handling gasoline ever devised.



This pump is one of our latest Double Cylinder, which in operating there is no lost motion, every movement of the handle pumps and measures oil, saving time, labor and money.

This outfit is especially designed for Automobile Garages.

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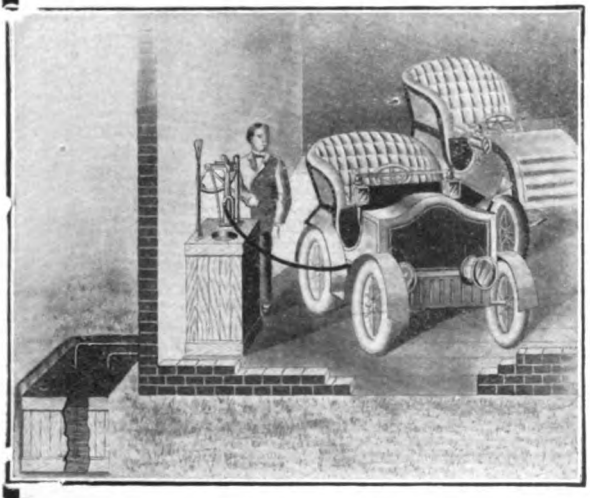
The NATIONAL TANK CO., Inc.
Dayton, Ohio

Western Underground Long Distance Gasoline Storage Outfits

Especially built for the convenience of the private automobilist and for use in the garage. Tank is placed underground any desired distance from building where pump is situated, is built of heavy galvanized sheet steel encased in wood, has sheet lead bottom which extends up on all sides for three inches. A tank so constructed will last a lifetime, as lead is not affected by the acids contained in gasoline and **positively assures no leakage.** Pump will measure accurately any given quantity from ½ pint to ½ gallon at one stroke of the lever. For filling automobiles the pump is supplied with a hose connection by means of which the exact number of gallons desired can be transferred to the reservoir of the automobile without the gasoline coming in contact with the open air, thus eliminating all danger of fire. We guarantee this outfit to be positively non-evaporative, non-corrosive, no leakage, and air-tight. Made in different sizes. Send for catalog. It will pay you.



WESTERN OIL PUMP CO., 2447 Kosciusko St., ST. LOUIS, MO.

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KINSEY Mfg. Co., Dayton, O. (see cover).
KIRK-Latty Co., Cleveland, O.
MANUFACTURERS Can Co. (The), 132-36 Mulberry St., Newark, N. J.
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
NATIONAL Tank Co., 10-16 Canal St., Dayton, O. (see page 85).
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
PRESSED Steel Tank Co., Milwaukee, Wis.
STANDARD Welding Co., 41 Cone St., Cleveland, O.
WALKER & Son, James, Detroit, Mich.
WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page 85).

TANKS (Storage)

BOWSER & Co., S. F., Ft. Wayne, Ind.
BROWN Oil Can Co., Dawson St., Toledo, O.
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GILBERT & Barker Mfg. Co., 82 John St., N. Y. City.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
HYDRAULIC Oil Storage & Distributing Co., Penobscot Bldg., Detroit, Mich. (see page opposite).
GORDON Tank & Pump Co., Dayton, O.
IRONCLAD Mfg. Co., 204 Varet St., Brooklyn, N. Y.
KALTENBACH, Fred, 12 N. Jefferson St., Chicago, Ill.
NATIONAL Tank CO., 10-16 Canal St. Dayton, O. (see page 85).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
STOUTENBOROUGH, X., 277 Pearl St., N. Y. City.
TOKHEIM Mfg. Co., Cedar Rapids, Iowa.
WILSON & Co., F. Cortez, Chicago, Ill.

TAPER PINS (See Screw Mach. Products)

TIRES (Cellular)

BROOKE, M. E., Denver, Colo.
IDEAL Auto Tire Co., Detroit, Mich.
MILWAUKEE Rubber Works Co., Cudahy, Wis.
RUBBER Tire Co. (The), 1215 Arch St., Phila., Pa.
VOORHEES Rubber Mfg. Co., Bostwick Ave., Jersey City, N. J.

TIRES (Leather)

CENTRAL Leather and Rubber Tire Works, 238-240 W. 50th St., N. Y. City.
LE MARQUIS Tire Co., 32 W. 33d St., N. Y. City.
NATIONAL Leather Tire Co., 501 S. Washington St., Owosso, Mich.
REPUBLIC Rubber Tire & Shoe Co., 449-451 West 53d St., New York (see page 43).
SAMPSON Leather Tire Co., 12 W. 33d St., N. Y. City.

TIRES (Pneumatic)

AJAX Standard Rubber Co., foot of East 106th St., New York.
CONTINENTAL Caoutchouc Co., 43 Warren St., N. Y. City (see page 59).
CONTINENTAL Rubber Works, Erie, Pa.
DIAMOND Rubber Co., Akron, O.
ELECTRIC Rubber Mfg. Co., Rutherford, N. J.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
FISK Rubber Co., Chicopee Falls, Mass.
G & J Tire Co., 549 E. Georgia St., Indianapolis, Ind.
GAULIOS Tire Co., Broadway and 56th St., New York.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARTFORD Rubber Wks. Co., Hartford, Conn.
INTERNATIONAL Auto. & Vehicle Tire Co., 90-92 W. B'way, N. Y. City.
KOKOMO Rubber Co., Kokomo, Ind.
MICHELIN Tire Co., 6 W. 29th St., N. Y. City.
MORGAN & Wright, Lake and May Sts., Chicago, Ill.
PENNSYLVANIA Rubber Co., Jeannette, Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
TENNANT Auto-Tire Co. (The), Springfield, O. (see page 17).

TIRES (Solid)

ALDEN Rubber Co., Barberton, O.
BATAVIA Rubber Tire Co., Batavia, N. Y.
CALUMET Rubber Tire Co. (The), 43d & Wabansia Ave., Chicago, Ill.
CONSOLIDATED Rubber Tire Co., 40 Wall St., N. Y. City.
DAVIE & Co., 1310-1314 Wallace St., Phila., Pa.
DIAMOND Rubber Co., Akron, O.
EMPIRE Rubber Mfg. Co., Trenton, N. J.
FIRESTONE Tire & Rubber Co., Miller St. and Sweitzer Ave., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARRISBURG Rubber Tire Wks., Harrisburg, Pa.
HARTFORD Rubber Wks. Co., 691 Park Ave., Hartford, Conn.
INDIA Rubber & Insulated Wire Co., Jonesboro, Ind.
INDIA Rubber Co., New Brunswick, N. J.
INTERNATIONAL Auto. & Vehicle Tire Co., Milltown, N. J.
KOKOMO Rubber Co., Kokomo, Ind.
MAHONING Rubber Co., Youngstown, O.
MORGAN & Wright, Lake and May Sts., Chicago, Ill.
NEW JERSEY Car Spring & Rubber Co., Jersey City, N. J.
NEW YORK Belting & Packing Co., 25 Park Pl., N. Y. City.
ONEIDA Rubber Tire Wks., Oneida, N. Y.
PENNSYLVANIA Rubber Co., Jeannette, Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
REVERE Rubber Co., Boston, Mass.
ST. JOHN Rubber Tire Co., 116 Broad St., N. Y. City.
STEIN Double Cushion Tire Co., Akron, O.
SWINEHART Clincher Tire Co., Akron, O.
VICTOR Rubber Tire Co., Springfield, O.

TIRE ALARMS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

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WE CLAIM

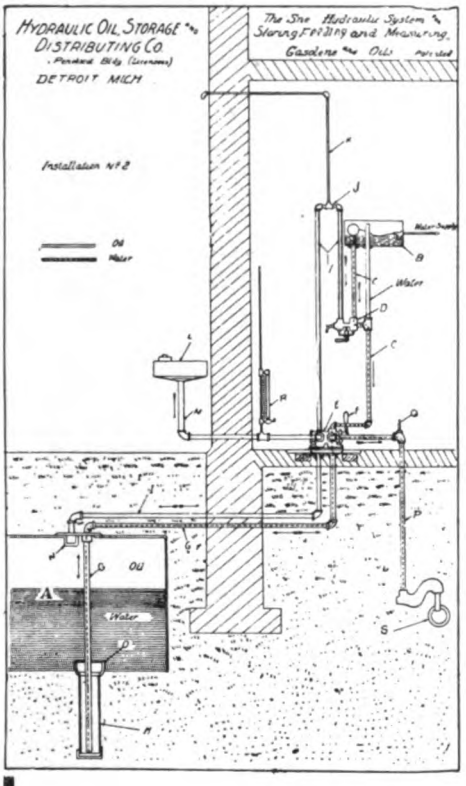
FOR THE

Snell Hydraulic System

OF

GASOLINE STORAGE

THAT IT IS IMPOSSIBLE TO EXPLODE



THE GASOLINE STORAGE TANK WITH FIRE, LIGHTNING OR ELECTRICITY, THAT THERE IS NO LOSS FROM EVAPORATION AND THAT BY SIMPLY OPENING DELIVERY VALVE YOU DRAW PURE, CLEAN GASOLINE FROM TOP OF TANK, WITH NO DIRT OR WATER IN IT.

NONE OF WHICH CLAIMS CAN BE HONESTLY MADE BY ANY OTHER SYSTEM.

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Hydraulic Oil Storage & Distributing Co.

Penobscot Building, Detroit, Michigan

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AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BURGIN Bros., Springfield, Mass.
GILBERT Mfg. Co., New Haven, Conn. (see page 35).
NATHAN Anklet Support Co. (The), 88 Reade St., N. Y. City.
WILEY, Wm. H., & Son Co., 1217 Main St., Hartford, Conn.

TIRE DETACHERS

BLANCHARD, A. W., 10 Clinton St., Brooklyn, N. Y.
GOODRICH, B. F., Co., Akron, O.
HANCOCK & Heller, Water St., Binghamton, N. Y.
MAXWELL & Co., L. R., Cedar Rapids, Ia.
MORGAN & Wright, Chicago, Ill.
REMSBURG Mfg. Co., E. E., Main & Weston Aves., Springfield, O.
RHODES Mfg. Co., Grand Rapids, Mich.
UNEEDME Tire Tool Co., Columbus, O. (see page 95).

TIRE FLUID

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BIKO Mfg. Co., Hubbardson, Mass.
BUFFALO Specialty Co., 375 Ellicott St., Buffalo, N. Y.
CHICAGO Tire Filling Co., 122 S. Green St., Chicago, Ill.
LINOLE Mfg. Co., 9 Schiele Ave., San Jose, Cal.
LONGHURST, James S., 72 Nevins St., Brooklyn, N. Y.
MOORE, Geo. P., Co., 305 Van Ness Ave., San Francisco, Cal.
NEWMASTIC Tire Co., 344 Michigan Ave., Chicago, Ill. and St. Louis, Mo.
N. Y. Anti-Puncture Tire Co., 132 W. 49th St., New York.

TIRE PLUGS

BROOKLYN Lock Co., 56 Ainslie St., Brooklyn, N. Y.
COX & Spencer, Rahway, N. J.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
PNEUMATIC Tire Plug Co. (The), Danbury, Conn.
TINGLEY & Co., Chas. O., Rahway, N. J.

TIRE PROTECTORS

ADWEAR Tire Sleeve Co., No. Attleboro, Mass.
AMERICAN Anti-Puncture Tire & Auto Co., 1693 Broadway, N. Y. City.
BROWN Mfg. Co., J. C., Butler, Ind.
CHICAGO Rawhide Mfg. Co., 75 Ohio St., Chicago, Ill.
GALLIEN, A. E., 12 W. 33d St., N. Y. City.
GILBERT Mfg. Co., New Haven, Conn. (see page 35).
HOWARD Mfg. Co., Attleboro, Mass.
LEATHER Tire Gds. Co., 1325 Boylston St., Newton Upper Falls, Mass.
MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PNEUMATIC Tire Protector Co., 14-16 S. St. Clair St., Dayton, O.
POST Mfg. Co. (The), Rutherford, N. J.
REPUBLIC Rubber Tire & Shoe Co., 449-451 W. 53d St., N. Y. City (see page 43).
WEED Chain Tire Grip Co., 28 Moore St., N. Y. City.
WOODWORTH Bros., Newton Highlands, Mass.

TIRE REPAIR KITS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BROOKLYN Lock Co., 56-58 Ainslie St., Brooklyn, N. Y.
COLE, G. W., Co., 143 B'way, N. Y. City.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARTFORD Rubber Works Co., Hartford, Conn.
"MISS SIMPLICITY" Repair Tool Co., 171 Fore St., Buffalo, N. Y.
RHODES Mfg. Co., 421 W. Bridge St., Grand Rapids, Mich.
SCHWAB, Louis, 134 Milford Ave., Newark, N. J.
UNION Mfg. Co., 506-508 Genesee St., Buffalo, N. Y.
VIM Co. (The), 68 Lake St., Chicago, Ill.

TIRE SHOES

MANNING Mfg. Co., Holyoke, Mass.

TIRE TAPE

GOODYEAR Tire & Rubber Co., Akron, O.
MASS. Chemical Co., 200 Summer St., Boston, Mass.
NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.
NATIONAL India Rubber Co., Bristol, R. I.

TOOLS

BROOKLYN Lock Co., 56 Ainslie St., Brooklyn, N. Y.
BURNHAM, Geo. Co. (The), Worcester, Mass.
FRASSE Co. (The), 38 Cortlandt St., N. Y. City.
FRASSE, Peter A., & Co., 94 Fulton St., N. Y.
GOODELL-Pratt Co., Greenfield, Mass.
HAMMACHER, Schlemmer & Co., New York.
NOONAN Tool & Machine Works, Rome, N. Y.
NORTON & Jones Machine Tool Works (The), East Main St., Plainville, Conn.
PATTERSON, Gottfried & Hunter, New York.
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SMITH & Heminway, 296 Broadway, New York.
SPRINGFIELD Drop Forging Co., Springfield, Mass.

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WATERBURY Tool Co., Waterbury, Conn.

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BUNKER Saddle & Specialty Co., 208 Lake St., Chicago, O.
TROXEL Mfg. Co., Elyria, O.
WARREN Leather Goods Co., 80 Austin St., Worcester, Mass.

TOPS (Auto)

AMERICAN Top Co., Jackson, Mich.
AUTOMOBILE Buggy Top Co. of America, Noxen, Pa.
AUTO. Cape Top Co., 541 Wabash Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTOMOBILE Top & Supply Co., Cleveland, O.
AUTO Top Co., of N. Y., 509 W. 30th St., N. Y. City.
BALTIMORE Buggy Top Co., Baltimore, Md.
BAUER Bros., 937 W. 8th St., Cincinnati, O.
BEEBE, A. M., 441 Elm St., New Haven, Conn.
BUOB & Scheu, 408-412 Court St., Cincinnati, O.
CARTIER, Chapman & Co., Ludington, Mich.
CENTRAL Mfg. Co., Connersville, Ind.
CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.
COLEMAN, Prouty & Root, Detroit, Mich.
COLLINS & Son, G. A., Akron, O.
COOMBS Co., Edmund H., Fort Wayne, Ind.
CORTLAND Carriage Goods Co., Cortland, N. Y.
DETROIT Auto Top Co., Jefferson Ave. and Brush St., Detroit, Mich.
DETROIT Carriage Co., Detroit, Mich.
DETROIT Motor Car Supply Co., 1256 Jefferson Ave., Detroit, Mich.
DICKINSON, Wm. J., 158 Duke St., Toronto, Ont., Can.
ECLIPSE Buggy Co., Fort Wayne, Ind. (see page opposite).
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
EMPIRE Gear & Top Co., 413 N. 22d St., Philadelphia, Pa.
EVERITT, B. F., 63-65 Fort St., E. Detroit, Mich.
FT. WAYNE Buggy Top Co., Ft. Wayne, Ind.
HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.
HARRISBURG Rubber Tire Wks., Harrisburg, Pa.
HILL Manufacturing Co., 1396 West Ave., Buffalo, N. Y.
HOFFMAN Wagon Co., Jacob, Cleveland, O.
HOLMES Bros., Detroit, Mich.
INDIANAPOLIS Buggy Top Co., 2116 So. Meridian St., Indianapolis, Ind.
INDIANAPOLIS Dash Co., Indianapolis, Ind.
INITIAL Toe Pad Co., Three Rivers, Mich.
KIMBALL & Co., C. P., Chicago, Ill.
KING Mfg. Co., Springfield, O. (see page opposite).
KNOWLTON, C. W., Hudson, Mass.
KROH, C. Z., Mfg. Co., Toledo, O.
LARRIMORE Buggy Top Co., Baltimore, Md.
LIMOUSINE & Carriage Mfg. Co., 325 E. 35th St., Chicago, Ill.
LONDON Auto. Supply Co. (The), 1229 Michigan Ave., Chicago, Ill. (see page opposite).
LONGDIN & Brugger, Fond-du-Lac, Wis.
MECKEL, F. L., 77 E. 13th St., Chicago, Ill.
MICHIGAN Auto. Body Co., Detroit, Mich.
MOORE & Munger Co., 602 West 52d St., New York.
MURRAY & Co., P. A., Newton, Mass.
MYERS Dayton Top Co. (The), Dayton, O. (see page opposite).
NEWTON, W. H., & Son, 127 Elm St., Cortland, N. Y.
NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.
PARSONS Buggy Top Co., 97 So. Clinton St., Chicago, Ill.
PHILLIPS Carriage Co., Frank, Cleveland, Ohio.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
QUINBY & Co., J. M., 1534 Broadway, N. Y. City.
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
REX Auto Top Co., 61 E. Spring St., Columbus, O. (see page 93).
RUSSELL, H. J., 32 Exchange St., Worcester, Mass.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
SNOW & Co., N. H., Binghamton, N. Y.
SPRAGUE Umbrella Co., Norwalk, O.
SPRINGFIELD Auto. Top & Upholstering Co., 74 Harrison St., Springfield, Mass.
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SWAN Auto. Trimming Co., Jefferson Ave. and Randolph St., Detroit, Mich.
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VEHICLE Apron & Hood Co., Columbus, O.
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WELLS Mfg. Co., 622 W. Grand Ave., Des Moines, Ia.
WHEELER Mfg. Co., Detroit, Mich.
WOOD & Sons, Fred'k R., 219 W. 19th St., N. Y. City.

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BRIDGEPORT Coach Lace Co., 805 Wood Ave., Bridgeport, Conn.
CARR, F. S., 74 Pearl St., Boston, Mass.
CRANDALL, Stone & Co., Binghamton, N. Y.
DUSENBURY, C. Coles, & Son, 396 B'way, N. Y. City.
EVERITT, B. F., 63-65 Fort St., E., Detroit, Mich.
GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.

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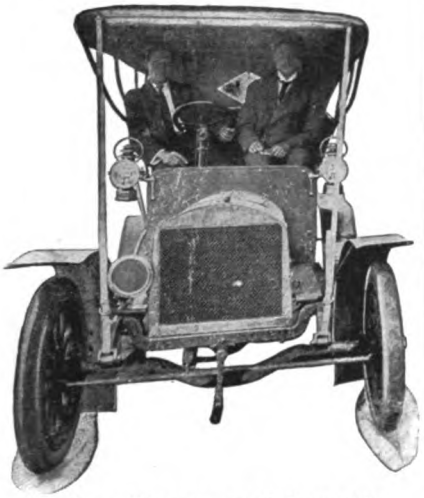

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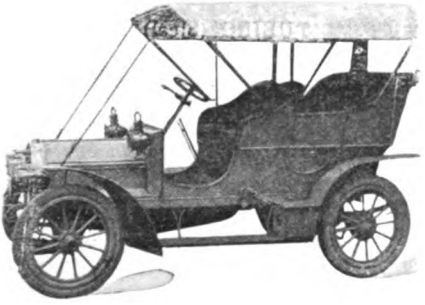

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KROH, C. Z., Mfg. Co., Toledo, O.
LANDERS Bros. Co., 445 10th St., Toledo, O.
MANUFACTURERS' Selling Co. (The), 1777 Broadway, N. Y. City.
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NEW Haven Button Co., New Haven, Conn.
RARITAN Woolen Mills, 14 White St., N. Y. City.
ROEHM & Davison, Detroit, Mich.
ROUSE, J. G., & Co., 413 Arch St., Phila., Pa.
ROY, James, & Co., 500 B'way, Watervleit, N. Y.
SCHOFIELD, Mason & Co., Fairhill and Cumberland Sts., Philadelphia, Pa.
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TINGUE Mfg. Co., Seymour, Conn.

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INITIAL Toe Pad Co., Three Rivers, Mich.
KROH, C. Z., Mfg. Co., Toledo, O.
NEWTON & Son, W. H., Cortland, N. Y.
ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.
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WARD, E. S., & Co., Newark, N. J.

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BARLOW Mfg. Co., Holyoke, Mass.
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COWLES, C., & Co., New Haven, Conn.
CRANDALL, Stone & Co., Binghamton, N. Y.
DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 37).
ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.
LEE Mfg. Co. (The), South Park, Port Huron, Mich.
METAL Stamping Co., 468-472 B'way, N. Y. City.
MURDOCK, Jas., Jr., & Co., 116 Opera Pl., Cincinnati, O. (see page 45).
NEIDER Co,. F. A. (The), Augusta, Ky. (see page 37).
ROEHM & Davison, Detroit, Mich.
SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.
SMITH, Jos. N., & Co., Fourth & Porter Sts..
VICTOR Metals Co., 29 Broadway, N. Y. City.
WOODRUFF & Sons Co., Walter W. (The). Mount Carmel, Conn.

TUBING (Brass and Copper)

AMERICAN Tube Wks., 137 Milk St., Boston, Mass.
ANSONIA Brass & Copper Co., Ansonia. Conn.
BENEDICT & Burnham, Waterbury, Conn.
BRIDGEPORT Brass Co., Bridgeport, Conn.
CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co.. Wm., Philadelphia, Pa.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
IVINS, Elwood Tube Works, Mill, Oak Lane Station, Philadelphia, Pa.
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
NEW Jersey Tube Co., Newark, N. J.
RANDOLPH-Clowes Co., Waterbury, Conn.
ROME Brass & Copper Co., Rome, N. Y.
SIMONS, John, Co., 104-110 Centre St., N. Y. City.
STOLP Mfg. Co., Huron & Townsend St., Chicago, Ill. (see page 75).

TUBING (Flexible)

ANGLO-American Flexible Metallic Tubing Co., New York, N. Y.
AUTOMOBILE Supply Mfg. Co., 320 Driggs Ave., Brooklyn, N. Y.
COATES Clipper Mfg. Co., Worcester, Mass.
FLOWER & Co., Walter L., St. Louis, Mo.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City. (see page 43).
SMITH, Albanus L. & Co., 1305 Arch St., Philadelphia, Pa. (Importer).

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AMER. Tube & Stamping Co., Bridgeport, Conn.
DELAWARE Seamless Tube Co., Auburn, Pa.
ELWOOD, Ivins, Tube Wks., Mill, Oak Lane Station. Philadelphia, Pa.
LAMINATED Tube Co., Columbus, O.
MACKIE Steel Tube Mfg. Co. (The), Hammond, Ind.
NATIONAL Tube Co., McKeesport, Pa.
PITTSBURG Seamless Tube Co., Beaver Falls, Pa.
SEAMLESS Seeel Tube Mfg. Co. (The), 804 Union Trust Bldg., Detroit, Mich.
SHELBY Steel Tube Co., 1819 Frick Bldg., Pittsburg, Pa.
STANDARD Welding Co., 41 Cone St., Cleveland, O.

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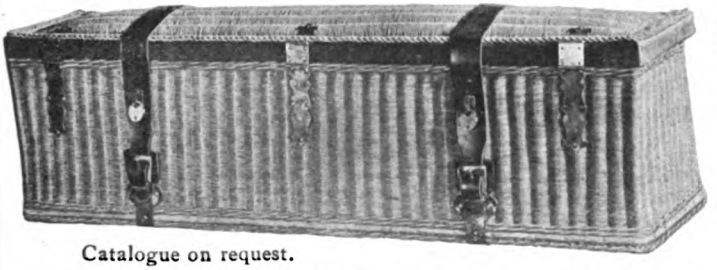

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PITTSBURG Gage & Supply Co., 309 Water St., Pittsburg, Pa.
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SIMMONS Co., John, N. Y. City.
STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.
STAR Brass Mfg. Co., Boston, Mass.

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BOWN Machine Works, Battle Creek, Mich.
HILTON Valve Co., Middleboro, Mass.
MORGAN, B., Rhinebeck, N. Y.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
SCHRADER'S, A., Sons, 30-32 Rose St., N. Y.
SCHWAB, Louis, Newark, N. J.
SCOVILLE Mfg. Co., Waterbury, Conn.
STANDARD Valve Co., 163 Hawthorne Ave., Brooklyn, N. Y.

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NOLTE Brass Co., Springfield, O.
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SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIMMONS, John Co., 104-110 Centre St., N. Y.
VINCENT Valve Co. (The), Sandusky, O.

VAPORIZERS

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BECKER, John, Hyde Park, Mass.
BRENNAN Mfg. Co., Syracuse, N. Y. (see page 61).
CAPITOL Motor Co., 519 B'way, Albany, N. Y.
ECKEL, Andrew, 1080 3d Ave., Brooklyn, N. Y.
JAMES, Wm., 92 Liberty St., N. Y. City.
PELTON Gaso. Eng. Wks., Lyons, Ia.

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HILDRETH Varnish Co., 32 B'way, N. Y.
LUCAS & Co., John, Philadelphia, Pa.
MASURY, John W., & Son, 44-50 Jay St., Brooklyn, N. Y.
MINETT Varnish Co., 129 Pearl St., N. Y. City.
MURPHY Varnish Co., Chestnut and McWhorter Sts., Newark, N. J.
NICE, Eugene E., 272-74 S. 2d St., Philadelphia, Pa.
ORIENTAL Varnish Co., 72 Midwood St., Brooklyn, N. Y.
PARROTT Varnish Co., Bridgeport, Conn.
PERRIN, Payson & Co., New York City.
PERRIN Varnish Co., 1133 Broadway, N. Y.
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SCHRACK, C., & Co., 152 No. 4th St., Phila., Pa.
SHERWIN-Williams Co., Cleveland, O.
SMITH, Edward, & Co., 45 B'way, N. Y.
STANDARD Varnish Co., 29 B'way, N. Y.
VALENTINE & Co., 257 Broadway, N. Y. City.
VICTORSON Varnish Co., 299 Pearl St., N. Y.
WATTS De Goyer Co. (The), 377 Illinois St., Chicago, Ill.
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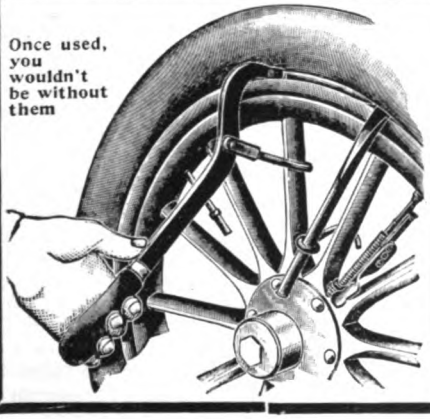

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LEATHER & Brass Mfg. Co., Auburn, N. Y.
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CONN. Supply Co., Hartford Life Ins. Bldg., Hartford, Conn.
IDEAL Carriage Washer Co., 62 Lenox St., Rochester, N. Y.
NICHOLSON Mfg. Co., H., 68 Dey St., N. Y.
RYAN & Long, 586 Oneida St., Appleton, Wis.
VEHICLE Specialty Co., 32 Union Pl., Hartford, Conn. (see page opposite).

WATER ALARMS AND COLUMNS

JARVIS Engine & Machine Works, River and Spring Sts., Lansing, Mich.
KITTS Mfg. Co., 111-115 Water St., Oswego, N. Y.
LOCKE Regulator Co., Salem, Mass.
PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.
RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.
RELIANCE Gauge Column Co. (The), 45 E. Prospect St., Cleveland, O.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

WATER COLUMN MIRRORS

ATWOOD Mfg. Co., Amesbury, Mass.
KNOX, The Frank J. Co., Hartford, Conn.

WELDING (Electric)

STANDARD Welding Co., Cleveland, O.

WHEELS (Comb'n, Wood and Wire)

ESTY, Wm., Laconia, N. H.,
LEE & Porter, Buchanan, Mich.
TOOMEY, C., & Co., 915 Campbell St., Kansas City, Mo.

WHEELS (Tubular Steel)

BRYANT Steel Rim & Wheel Co., Columbus, Ohio.
MIDGELY Mfg. Co., 200 W. Mound St., Columbus, O.
PARISH & Bingham Co., Cleveland, O.
TURNER & Fish, 130 So. Clinton St., Chicago, Ill.
WHITESIDE Wheel Co., 311 E. South St., Indianapolis, Ind.

WHEELS (Wire)

GARFORD Co. (The), Elyria, O. (see page 5).
JAMESVILLE Mfg. Co., Jamesville, N. Y.
LASHAWAY Wheel Co., E., Brookfield, Mass.
PRUDDEN, W. K., & Co., Lansing, Mich.
RASTETTER, Louis, & Son, Fort Wayne, Ind.
SCHACHT Mfg. Co., Cincinnati, O.
SMITH Co., A. O., Milwaukee, Wis.
WESTON-Mott Co., Utica, N. Y. (see page 15).

WHEELS (Wood)

AMERICAN Roller Bearing Co., South Framington, Mass.
ARCHIBALD Wheel Co., Lawrence, Mass.
BIDDLE & Smart Co., Amesbury, Mass.
BUCKEYE Wheel Co., Galion, O. (see page opposite).
CARR, Prescott & Co., Amesbury, Mass.
CRANE & McMahon, 18 South St., N. Y.
EAMES, A. M., & Co., So. Framingham, Mass.
EBERLY & Orris, Mechanicsburg, Pa.
FITCHBURG Wheel Co., Fitchburg, Mass.
HOOPES Bros. & Darlington, West Chester, Pa.
IMPERIAL Wheel Co., Flint, Mich.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
JONES, Phineas & Co., 301 Market St., Newark, N. J. (see page opposite).
JONES & Burt, 173 South St., Utica, N. Y.
MADISON Wheel Co., Madison, O.
MEEKER Mfg. Co., Dayton, O.
MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.
NATIONAL Wheel Co., Jackson, Mich.
NEW Haven Carriage Co., New Haven, Conn.
OLDS Wagon Wks., Fort Wayne, Ind.
PRUDDEN, W. K., & Co., Lansing, Mich.
SALISBURY Wheel & Mfg. Co., Jamestown N. Y.
SCHWARZ Patent Wheel Co., Philadelphia, Pa.
SELLE Gear Co. (The), Akron, O.
SHORTSVILLE Wheel Co., Shortsville, N. Y.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Wheel Co., Standard and Division Sts., Indianapolis, Ind.

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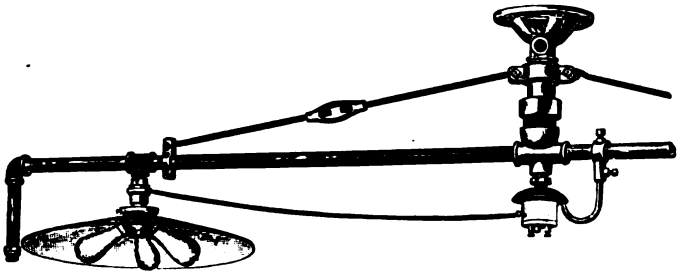

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WAPAKONETA Wheel Co., Wapakoneta, O.
WESTON-Mott Co., Utica, N. Y. (see page 15).
WHEEL & Wood Bending Co. (The), 141 John St., Bridgeport, Conn.
ZWICK & Greenwald Wheel Co. (The), Dayton, O.

WHEEL TRUERS

DUDLEY, A., Mfg. Co., Menominee, Mich.
GARVIN Mach. Co., Spring & Varick Sts., N. Y.
NOONAN Mach. & Tool Wks., Rome, N. Y.
THEIM & Co., University and 38th Aves., Columbia Heights, Minn.
WAGNER Cycle Co., 41-43 West 4th St., St. Paul, Minn.

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AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
ATLANTIC Insulated Wire & Cable Co., New York.
BOURN Rubber Co., Providence, R. I.
CHICAGO Insulated Wire Co., 152 Lake St., Chicago, Ill.
EASTERN Electric Cable Co., Boston, Mass.
GENERAL Electric Co., Schenectady, N. Y.
HAZARD Mfg. Co., Wilkesbarre, Pa.
HERZ & Co., Cor. Elm and Marion Sts., N. Y. City (see page 39).
INDIA Rubber & Gutta Percha Insulating Co., N. Y. City.
INDIANA Rubber & Insulater Wire Co., Jonesboro, Ind.
MILLER, Norman Bruce, 1420 Chestnut St., Phila., Pa.
NATIONAL India Rubber Co., Bristol, R. I.
NEW YORK Insulated Wire Co., N. Y. City.
OKONITE Co., 253 Broadway, N. Y. City.
PACKARD Electric Co., 412 North Ave., Warren, O.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
RUBAY, Leon, 136 W. 38th St., N. Y. City.
SAFETY Insulated Wire & Cable Co., N. Y.
SIMPLEX Electrical Co., Boston, Mass.
STANDARD Underground Cable Co., Pittsburg, Pa.

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BLISS-Chester Co., Providence, R. I.
BRIGGS, W. H., 424 Bedford Ave., Brooklyn, N. Y.
HERZ & Co., Elm and Marion Sts., New York City (see page 39).
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 89).
NEWPORT Eng. Works, 367 Thames St., Newport, R. I.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 51).
RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.
SPLITDORF, C. F., 27 Vandewater St., N. Y. City (see page 81).

WOOD BENDINGS

AMERICAN Veneer Co., Kenilworth, N. J.
SHEPHERD & Son, H. G., New Haven, Conn.
TUCKER Wood Work Co. (The), Sidney, O.

WRENCHES

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BARNES Tool Co., 958 Grand Ave., New Haven, Conn.
BAY STATE Tool Co., 294 Washington St., Boston, Mass.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BULLARD Automatic Wrench Co., Providence, R. I. (see page opposite).
COES Wrench Co., Worcester, Mass.
DUDLY, A., Mfg. Co., Menominee, Mich.
EDMONDS-Metzel Mfg. Co., 153-159 S. Jefferson St., Chicago, Ill.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 47).
EWER, M. G., Tolsma Bldg., 45 State St., Detroit, Mich.
HALL'S Sons, Samuel, New York, N. Y.
HAWKEYE Wrench Co., Marshalltown, Ia.
HJORTH Wrench Co., Jamestown, N. Y.
IRLAND Pipe Wrench Co., 15 Court Sq., Boston, Mass.
JENNINGS & Co., C. E., New York, N. Y.
LAMSON & Sessions, 412 Scranton Ave., Cleveland, O.
MOSSBERG, Frank, Co., Attleboro, Mass.
OFFSET Handle Wrench Co., 123 La Salle St., Chicago, Ill.
ORR & Lockett Hardware Co., 71 Randolph St., Chicago, Ill.
PECK, Stow & Wilcox Co., Southington, Conn.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 51).
RAILWAY Appliance Co., Old Colony Bldg., Chicago, Ill. (see page 59).
RICHARDS Tool Co., 15 Court Sq., Boston, Mass.
ROTHENBUCHER Mfg. Co., 328 Jerome St., Brooklyn, N. Y.
SCHRADER, Frederick, Bridgeport, Conn.
SMITH & Hemmingway, 296 Broadway, New York.
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TRIMONT Mfg. Co., Roxbury, Mass.
WAKEFIELD, J. E., 89 Exc. St., Worcester. Mass.
WALWORTH Mfg. Co., Boston, Mass.
WHITMAN & Barnes Co., Akron, O.
WILLIAMS & Co., J. H., Brooklyn, N. Y.
WORCESTER Pressed Steel Co., 100 Beacon St., Worcester, Mass.

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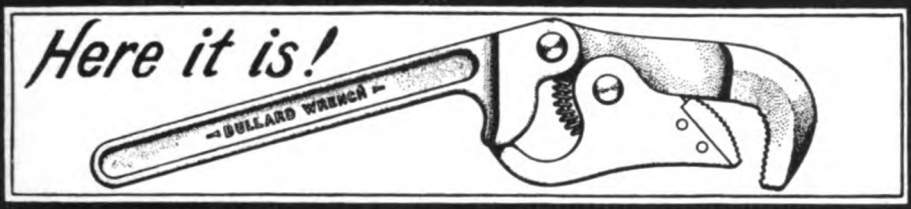

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The Automobile Trade Directory

April, 1906

A Classified List *containing* the Names and Addresses of all American Manufacturers of Complete Automobiles, Motor Cycles, Motor Boats, and of all makers of component Parts & Accessories

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Issued Quarterly

Subscription Price $1.00 per Year. Single Copies 25 Cents, Postpaid

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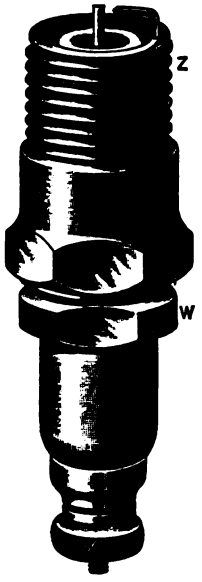

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will tell you how much current you are drawing from your battery and explain why you are obliged to buy new batteries every few days.

The Connecticut Spark Coils

hold the WORLD'S RECORDS for ENDURANCE and ECONOMY.

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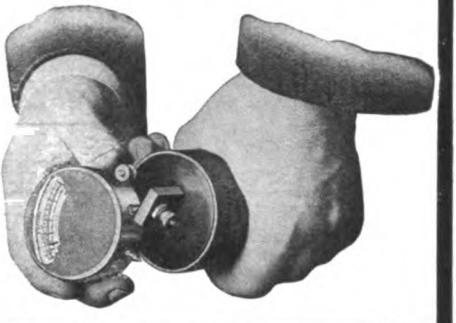

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Classified Trade Directory

—OF—

Automobiles, Motor Boats, Motorcycles and the Automobile Manufacturing Industry, Including Parts and Accessories.

COMPLETE MACHINES

GASOLINE CARS

ACME Motor Car Co., Reading, Pa.
ADAMS Automobile Co., Hiawatha, Kans.
ADAMS Co. (The), Dubuque, Ia.
AEROCAR Co. (The), Detroit, Mich. (see page 9).
AMERICAN Auto Car Co., 4th and Plumb Sts., Cincinnati, O.
AMERICAN Locomotive Automobile Co., Providence, R. I.
AMERICAN Motor Car Co., Indianapolis, Ind.
APPERSON Bros. Auto. Co., Kokomo, Ind.
ARDSLEY Motor Car Co., Yonkers, N. Y.
ARIEL Motor Car Co., 70 Stanhope St., Boston, Mass.
AUBURN Auto Co., East 7th St., Auburn, Ind.
AUSTIN Auto Co., Grand Rapids, Mich.
AUTOCAR CO. (The), Ardmore, Pa.
AUTO Vehicle Co., Los Angeles, Cal.
BARTHOLOMEW Co. (The), 110 Bradley Ave., Peoria, Ill.
BERKSHIRE Automobile Co., Pittsfield, Mass.
BLOMSTROM Motor Co., C. H., 1284 River St., Detroit, Mich.
BROWN Mach. Co., James, Pawtucket, R. I.
BUCKEYE Mfg. Co., Anderson, Ind.
BUFFUM Co., H. H., Abingdon, Mass.
BUICK Motor Co., Jackson, Mich.
BURTT Mfg. Co., Kalamazoo, Mich.
CADILLAC Automobile Co., Detroit, Mich.
CHADWICK Motor Car Co., 1627 Broadway New York City.
CHICAGO Commercial Auto Mfg Co., Harvey, Ill.
CHICAGO Recording Scale Co., Waukegan, Ill.
CHRISTIE Direct Action Motor Car Co., 519 E. 18th St., N. Y. City.
CLEVELAND Motor Car Co., Cleveland, O.
COLUMBUS Buggy Co., Columbus, O.
COLUMBIA Electric Co., McCordsville, Ind.
COMMERCIAL Motor Co., Marion, N. J.
CORWIN Mfg. Co., Peabody, Mass.
CORBIN Motor Vehicle Corporation, New Britain, Conn.
COVERT Motor Vehicle Co., Rochester, N. Y.
CRAWFORD Auto Co., Hagerstown, Md.
CROESUS Motor Car Co., 216 E. 11th St., Kansas City, Mo.
DAIMLER Mfg. Co., Long Island City, N. Y.
DAYTON Motor Car Co., Dayton, O. (see page 9).
DEERE-Clark Motor Car Co., Moline, Ill.
DETROIT Auto Mfg. Co., 259 Willis Ave., East, Detroit, Mich.
Detroit Auto Vehicle Co., 65-71 Catherine St., Detroit, Mich.
DETROIT-Oxford Mfg. Co., Oxford, Mich.
DOLSON Automobile Co., Charlotte, Mich.
DORRIS Motor Car Co., 1211-1217 N. Vande-Water Ave., St. Louis, Mo.
DUQUESNE Construction Co., Jamestown, N. Y.
DURYEA Power Co., Reading Pa.
EAGLE Automobile Co., Rahway, N. J.
EISENHUTH Horseless Vehicle Co., Middletown, Conn.
ELECTRIC Vehicle Co. (The), Hartford, Conn.
ELMORE Mfg. Co., Clyde, O.
FAIRMOUNT Engineering Co., 3207 Spring Garden St., Philadelphia, Pa.
FORD Motor Co., Detroit, Mich.
FOREST City Motor Car Co., Massilon, O.
FRANKLIN Mfg. Co., H. H., Syracuse, N. Y.
GAETH Auto Wks., 900 Pearl St., Cleveland, Ohio.
GROUT Bros. Automobile Co., Orange, Mass.
HARRISON Wagon Co., Grand Rapids, Mich.
HAYNES Automobile Co. (The), Kokomo, Ind.
HEWITT Motor Co., 10 E. 31st St., N. Y. City.
HILL Motor Car Co., Haverhill, Mass.
HOLSMAN Auto Co., Monadnock Block, Chicago, Ill.
IROQUOIS Motor Car Co., Seneca Falls, N. Y.
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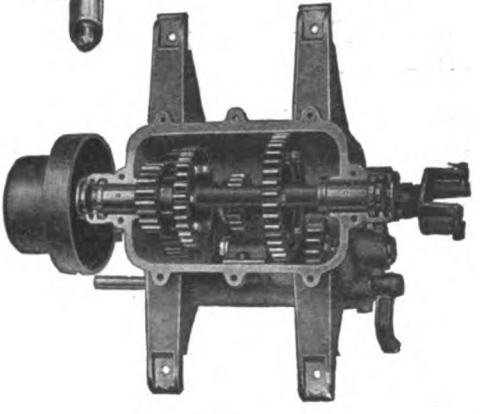

Garford Parts

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STEERING GEAR
CLUTCH
PROPELLER SHAFT
DISTANCE ROD and Bracket
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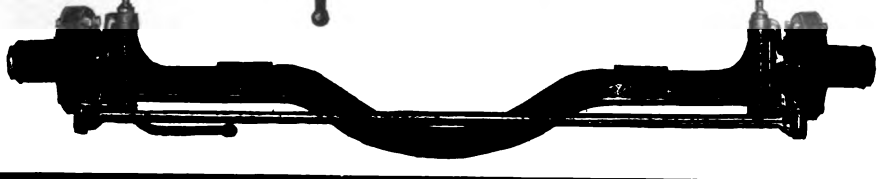

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JACKSON Automobile Co., Jackson, Mich.
JEFFERY, Thos. B. & Co., Kenosha, Wis.
JONES-Corbin Motor Co., Philadelphia, Pa.
KANSAS CITY Motor Car Co., Kansas City, Mo.
KNIGHT & Kilbourn, 19 Huron St., Chicago, Ill.
KNOX Automobile Co., 40 Waltham Ave., Springfield, Mass.
KOBUSCH Automobile Co., St. Louis, Mo.
KRUEGER Mfg. Co., 463-465 Front St., Milwaukee, Wis.
LA SALLE Niagara Auto Co., Niagara Falls, N. Y.
LEAR Auto Co., Oscar, Columbus, O.
LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.
LOGAN Construction Co., Chillicothe, O.
LOZIER Motor Co. (The), 55th St. & Broadway, N. Y. City.
MACK Bros. Motor Car Co., Allentown, Pa.
MAHONING Motor Car Co., Youngstown, O.
MARBLE-Swift Automobile Co., 6203 Princeton Ave., Chicago, Ill.
MARION Motor Car Co., W. 15th St. and Big Four Ry., Indianapolis, Ind.
MATHESON Motor Car Co., Wilkesbarre, Pa.
MAXWELL-Briscoe Motor Co., Tarrytown, N. Y.
MERKEL Motor Co., Milwaukee, Wis.
MICHIGAN Automobile Co., Ltd., Kalamazoo, Mich.
MITCHELL Motor Car Co., Racine Junction, Wis.
MODEL Gas Engine Works, Auburn, Ind.
MODEL Tool Co., Erie, Pa.
MOLINE Auto Co., E. Moline, Ill.
MOON Motor Car Co., Jas. W., St. Louis, Mo.
MOTORCAR Co. (The), Detroit, Mich.
NAPIER Motor Car Co. of Amer., Boston, Mass.
NATIONAL Motor Vehicle Co., Indianapolis, Ind.
NORDYKE & Marmon Co., Indianapolis, Ind.
NORTHERN Mfg. Co., Canton and Champlain Sts., Detroit, Mich.
OLDS Motor Works, Lansing, Mich.
PACKARD Motor Car Co., Detroit, Mich.
PAGE Motor Vehicle Co. (The), Providence, R. I.
PALMER Automobile Mfg. Co., Schofield Bldg., Cleveland, O.
PEERLESS Motor Car Co. (The), Lisbon St., Cleveland, O.
PIERCE Engine Co., Racine Junction, Wis.
PIERCE, The Geo. N., Co., 6-22 Hanover St., Buffalo, N. Y.
POPE Mfg. Co., Hartford, Conn. (see page 53).
POPE Mfg. Co., Hagerstown, Md.
POPE Motor Car Co., Toledo, O.
PRACTICAL Automobile Co., Mercantile Block, Aurora, Ind.
PREMIER Motor Mfg. Co., Indianapolis, Ind.
PUNGS-Finch Auto & Gas Eng. Co., Detroit, Mich.
RANIER Co., (The), Broadway & 50th St., N. Y. City.
RELIANCE Auto Co., 67-99 E. Fort St., Detroit, Mich.
REO Motor Car Co., Lansing, Mich.
ROYAL Motor Car Co., Cleveland, O. (see page 61).
ST. LOUIS Motor Car Co., Peoria, Ill. (see page 11).
SAMPSON, Alden Co., Pittsfield, Mass.
SCHACHT Mfg. Co., 2727-2731 Spring Grove Ave., Cincinnati, O.
SIMPLEX Motor Car Co., Michigan City, Ind.
SMITH Auto Co., Topeka, Kan.
SMITH & Mabley, 7th Ave. and 38th St., New York.
STEARNS, The F. B., Co., Euclid and Lake View Aves., Cleveland, O.
STEVENS Arms and Tool Co., J., Chicopee Falls, Mass.
STUDEBAKER Automobile Co., South Bend, Ind.
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
SUCCESS Automobile Mfg. Co., St. Louis, Mo.
SUNSET Automobile Co., San Francisco, Cal.
THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.
TINCHER Motor Car Co., Jackson Blvd. and Robey St., Chicago, Ill.
TWYFORD Motor Car Co., Brookville, Pa.
UPTON Motor Co., Lebanon, Pa.
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WALKER Motor Car Co., Detroit, Mich.
WALTER Auto Co. (The), 49-51 W. 66th St., New York.
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WESTERN Motor Truck & Vehicle Co., Chicago, Ill.
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YORK Motor Car Co., York, Pa.
ZENT Auto Co., Bellefontaine, O.

GASOLINE COMMERCIAL VEHICLES

ACME Motor Car Co., Reading, Pa.
AMERICAN Motor Truck Co., Toledo, O.
BIDDLE-Murray Mfg. Co., Oak Park, Ill.
BUCKEYE Mfg. Co., Anderson, Ind.
CADILLAC Automobile Co., Detroit, Mich.
CHICAGO Commercial Auto Mfg. Co., Harvey, Ill.
CLEMICK-Hirsch Co., Milwaukee, Wis.
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DETROIT Auto Vehicle Co., 71 Catherine St., Detroit, Mich.
DURYEA Power Co., Reading, Pa.
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IROQUOIS Iron Works, Buffalo, N. Y.

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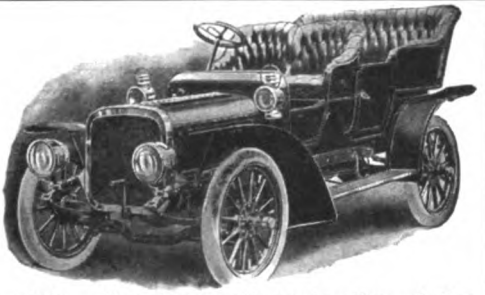
Aerocar



The **Aerocar** will prove the fulfillment of all your expectations and desires in a motor car. A big, roomy, luxuriously equipped body, with all the grace and elegance in design that is given the highest priced motor cars.

It is the ONE perfect air-cooled motor car

And there are special practical features which command your confidence.

All the mechanism of the **Aerocar** is immediately accessible.

Racing of engine or disengagement of clutch is effectively controlled by the use of direct connected auxiliary throttle, which closes each time clutch is released.

Both inlet and exhaust valves are of nickel alloy and are mechanically operated.

Connections for all brakes are of drop-forged steel.

The generous design of transmission brake eliminates almost entirely the use of emergency brake, which acts directly on rear hubs. The dust-proof construction of the emergency brake lengthens its life and increases its efficiency. The torsion lever and springs are relieved of unnecessary strain by use of swiveled spring seats.

Drop forgings only are used in rear hub construction.

These are but a few of the many superior practical features of the **Aerocar**—"Built by practical men" means the **Aerocar** is a perfect motor car. We are making prompt delivery.

But send for our illustrated descriptive literature, and drop us a card that we may give a practical demonstration of the running qualities of the Aerocar. If you will send us 10 cents in stamps we will mail you a handsome gold-plated scarf pin.

The Aerocar Company, Detroit, U. S. A.

Members American Motor Car Manufacturers' Association.

The Aerocar Company, of New York, 73d and Broadway, New York City.
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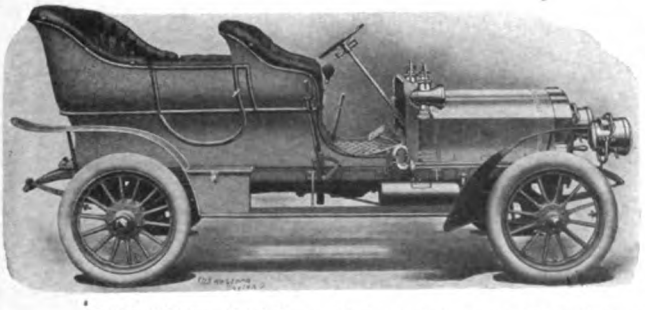
Oscar M. Bergestrom, 349-357 S. Third Avenue, Minneapolis, Minn.

DETROIT AEROCAR DETROIT AEROCAR DETROIT AEROCAR DETROIT

MODEL D

Stoddard-Dayton



The car that strikes the ideal medium between exorbitant frills and cheap unworthiness.

The **Stoddard-Dayton** leads in sales—because its worth is not upon paper, but in the car. Because one machine sells another. Because the makers back up the agent, and back up the purchaser, with a guarantee that works out as splendidly as it promises. The handsomest car of all—standard finish, pearl gray with tan upholstering; other colors optional with purchaser.

Stoddard-Dayton Model D. 4-cylinder, vertical motor, 4½x5 cylinders, 30-35 H.P., selective type sliding gear transmission, 3 speeds and reverse, controlled by a single lever operating in a guide of the H-slot type. Operator can pass from any gear to other gear at will, up hill or down without noise or clashing. Roller bearings throughout, floating type, clutch driven rear axle with large bevel gears, mechanical lubrication. 2,100 pounds, $2,250. Advance catalog ready. Write for our new catalog fully describing the Stoddard Dayton Touring Car, Runabout and Limousine for 1906.

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LOGAN Construction Co., Chillicothe, O.
MACK Bros. Motor Car Co., Allentown, Pa.
MARION Motor Car Co., Indianapolis, Ind.
MATHESON Motor Car Co., Wilkes-Barre, Pa.
MAXWELL-Briscoe Motor Co., Tarrytown, N. Y.
MITCHELL Motor Car Co., Racine, Wis.
MODEL Gas Engine Works, Auburn, Ind.
MOTORCAR Co., Detroit Mich.
OLDS Motor Works, Lansing, Mich.
PACKARD Motor Car Co., Detroit, Mich.
POPE Mfg. Co., Hartford, Conn.
PREMIER Motor Mfg. Co., Indianapolis, Ind.
RAPID Motor Vehicle Co., Pontiac, Mich.
RELIANCE Auto Co., 67 E. Fort St., Detroit, Mich.
REO Motor Car Co., Lansing, Mich.
ST. LOUIS Car Co., St. Louis, Mo.
SOULES Motor Car Co., Grand Rapids, Mich.
STEVENS Arms & Tool Co., J., Chicopee Falls, Mass.
UNION Motor Truck Co., Philadelphia, Pa.
UNITED Motor & Vehicle Co. (The), 150 Nassau St., New York.
WESTERN Tool Works, Galesburg, Ill.
WOLVERINE Auto & Commercial Vehicle Co., Dundee, Mich.

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BAKER Motor Vehicle Co., 116 Jesse St., Cleveland, O.
BABCOCK Electric Carriage Co., 240 W. Utica St., Buffalo, N. Y.
CANTONO Electric Tractor Co., 111 West 37th St., New York.
COLUMBUS Buggy Co., Columbus, O.
ELECTRIC Vehicle Co., Hartford, Conn.
ELECTRIC Vehicle Equipment Co., 20th and Montgomery Ave., Philadelphia, Pa.
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KAMMANN Mfg. Co., 240 W. Lake St., Chicago, Ill.
LANSDEN Co. (The), 54 Lackawanna Ave., Newark, N. J.
NATIONAL Motor Vehicle Co., 2100 E. 22nd St., Indianapolis, Ind.
PARSONS Elec. Motor Carriage Co., Cleveland, O.
POPE Motor Car Co., Indianapolis, Ind.
RAUCH & Lang Carriage Co. (The), 406 Superior St., Cleveland, O.
STUDEBAKER Automobile Co., South Bend, Ind.
SYNNESTVEDT Machine Co., 4117 Liberty Ave., Pittsburgh, Pa.
VEHICLE Equipment Co., Borden and Review Aves., Long Island City, N. Y.
WOODS Motor Vehicle Co., 110-12 East 20th St., Chicago, Ill.

ELECTRIC COMMERCIAL VEHICLES

AUTO-CAR Equipment Co., Inc., 1453-59 Niagara St., Buffalo, N. Y.
CANTONO Electric Tractor Co., 111 W. 37th St., New York.
ELECTRIC Vehicle Co., Hartford, Conn.
HOLSON Motor Patents Co., Ltd., Grand Rapids, Mich.
LANSDEN Co. (The), Newark, N. J.
McCREA Motor Truck Co. (The), Am. Trust Bldg., Cleveland, O.
PITTSBURG Motor Veh. Co., Pittsburg, Pa.
POPE Motor Car Co., Indianapolis, Ind.
STUDEBAKER Automobile Co., South Bend, Ind.
SYNNESTVEDT Machine Co., 4117 Liberty Ave., Pittsburgh, Pa.
VEHICLE Equipment Co., Borden and Review Aves., Long Island City, N. Y.

STEAM PLEASURE VEHICLES

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CHICAGO Auto Mfg. Co., 4230 State St., Chicago, Ill.
CLARK, Edward S., 272 Freeport, St., Boston, Mass.
ESSEX Motor Car Co., 60 State St., Boston, Mass.
JOHNSON Service Co., 149-153 Michigan St., Milwaukee, Wis.
LANE Motor Vehicle Co., Poughkeepsie, N.Y.
ROSS, Louis S., Newtonville, Mass.
STANLEY Motor Carriage Co., Newton, Mass.
TERWILLIGER & Co., Wm. B., 32 Division St., Amsterdam, N. Y.
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COLUMBIA Engineering Works, William and Emlay Sts., Brooklyn, N. Y.
COMMERCIAL Truck & Power Co., 171 Main St., Rahway, N. J.
GROUT Bros. Automobile Co., Orange, Mass.
JOHNSON Service Co., 149-153 Michigan St., Milwaukee, Wis.
TRACTOR Co. (The), 3rd and Trumbull Sts., Elizabethport, N. J.
WHITE Sewing Machine Co., Rose Bldg., Cleveland, O.

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AMERICAN Boat & Machine Co., 3517 So. 2d St., St. Louis, Mo.
AMERICAN Yacht & Motor Co., Cherokee and DeKalb Sts., St. Louis, Mo.
AUTO Boat Co., West Mystic, Conn.
AYERS & Son, A., Nyack, N. Y.
BARRETT'S Son, A., Camden, Me.
BAY Ridge Launch Works, foot 39th St., Brooklyn, N. Y.
BEERS Bros. Engine Co., Culver Road, Rochester, N. Y.
BELLOWS, M. S., Chateaugay Lake, N. Y.
BENTER, Worth S., Catskill, N. Y.
BROOKS Boat Mfg. Co., Bay City, Mich.
BUFFUM Co., H. H., Abingdon, Mass.
BURGESS & Packard, Board of Trade Bldg., Boston, Mass.
CHASE Yacht & Eng. Co., Providence, R. I.

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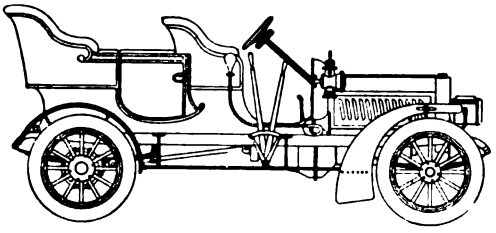
1906 **ST. LOUIS** 1906

"RIGS THAT RUN"



"RIGS THAT RUN"

TYPE XVI, 32-36 ACTUAL H. P., $2,500

Our 1906 Type XVI is the crowning triumph of fifteen years' experience in building gasoline automobiles. This model represents **everything good** in modern automobile construction. You cannot afford to pay more and you couldn't expect to pay less. Compare Type XVI with any other car listing from $3,000 to $5,000, and we doubt if you will find any vast difference other than the price. An agent should sell a car that will instantly appeal to all classes. Thousands of prospective purchasers are in the market—a few of them will insist on paying $5,000 and over; a few more will insist on $2,000 and under, but eight out of every ten will be the between class if they can get the satisfaction at a reasonable price. Type XVI is between the two extremes (in price), but from closest observation we fail to see where it will not compare inch for inch with any car built in America. A fair, unprejudiced comparison is all we ask. It will carry five people comfortably at any speed from four to fifty miles an hour; absolutely noiseless; no vibration; will negotiate 22 per cent. grade on high speed. General finish, upholstering and trimmings cannot be surpassed, no matter what the price.

LASTLY. We are fast closing all available territory, and our agency list will be closed solid before the New York Show. If we are not already represented in your immediate vicinity, you had better write for printed matter at once. Don't wait until show time and be among the "also rans." Our agency proposition is most entertaining—it might pay you to investigate.

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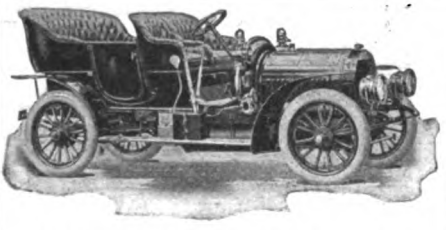

We are working on the theory that it is better to refine and improve the already successful Royal Tourist, than to endeavor to sell you a hastily designed experiment.

COMFORT *SPEED* *SAFETY*
40 H. P. *1906 Model G* *$3,500*

ROYAL

The Royal Motor Car Company
Cleveland

Member A. L. A. M. Send for Catalogue

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DETROIT River Boat & Oar Co. (The), Wyandotte, Mich.
DOMAN Co., H. C., Oshkosh, Wis.
DUTTON Engineering Co., Perth Amboy, N. J.
ELECTRIC Launch Co. (The), Bayonne, N. J.
EMMONS Co., E. Gerry, Swampscott, Mass.
FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRBANKS, Morse & Co., Chicago, Ill.
FAY & Bowen, 92 Lake St., Geneva, N. Y.
FRASER Hollow Spar & Boat Co., Greenport, L. I.
GAS Engine & Power Co., and Chas. L. Seabury Co., Morris Heights, N. Y. City.
GERE Launch & Engine Works, 234 Palisade Ave., Yonkers, N. Y.
GLOBE Iron Works, Menomonie, Wis.
HENERHOFF Mfg. Co., Bristol, R. I.
HEPBURN, J. W., Toledo, O.
HUNTINGTON Mfg. Co., New Rochelle, N. Y.
ISHAM Co., Norwich, Conn.
JACOB, R., City Island, N. Y.
JONES & Laborde, Oshkosh, Wis.
KIDNEY, Dan & Son, West DePere, Wis.
LAKE Shore Engine Works, Marquette, Mich.
LAMB Boat & Engine Co., Clinton, Ia.
LANLEY & Son Corp., South Boston, Mass.
LEGARE, J. L., Ogdensburg, N. Y.
LEIGHTON, H. J., Syracuse, N. Y.
LOZIER Motor Co. (The), 1 Broadway, New York City.
MARBLEHEAD Yacht Yard, Marblehead, Mass.
MARINE Eng. & Mach. Co., Harrison, N. J.
MATHER, The C. B., Corporation, Rowley, Mass.
MATTHEWS Boat Co., Bascom, O.
MEDART, Fred, St. Louis, Mo.
MIANUS Motor Works, Mianus, Conn.
MICHIGAN Steel Boat Co., 1252 Jefferson Ave., Detroit, Mich.
MILTON Point Shipyard, Rye, N. Y.
MILTON, T. M., Brewerton, N. Y.
MULLINS Co., W. H., 124 Franklin St., Salem, O.
NEW York Kerosene Oil Engine Co., 31 Burling Slip, New York.
N. Y. Yacht, Launch & Engine Co., Morris Heights, N. Y.
NOCK, F. S., East Greenwich, R. I.
NORWALK Launch Co., Norwalk, Conn.
OSHKOSH Boat Works, Oshkosh, Wis.
OUTING Boat Co., Marquette Bldg., Chicago, Ill.
PALMER Bros., Cos Cob, Conn.
PELTON Gaso. Engine Works, Lyons, Ia.
PERKINS Launch & Motor Co., Gloucester, Mass.
PIERCE Engine Co., Racine Junction, Wis.
PIERSON Boat Construction Co., Duluth, Minn.
PUNGS-Finch Co., Detroit, Mich.
RACINE Boat & Canoe Co., Racine, Wis.
RACINE Boat Mfg. Co., Muskegon, Mich.
ROCHESTER Gas Eng. Co., Rochester, N. Y.
SEITZ Co., F. A., 141 Frelinghuysen Ave., Newark, N. J.
SMITH & Mabley, New York City.
STANDARD Motor Construction Co., 172 Whiton St., Jersey City, N. J.
ST. PAUL Boat Co., St. Paul, Minn.
TOLEDO Motor Boat & Power Co. (The), Toledo, O.
TOPPAN Boat Mfg. Co., 9 Haverhill St., Boston, Mass.
TOQUET Launch & Motor Co. (The), Saugatuck, Conn.
TRUSCOTT Boat Mfg. Co., St. Joseph, Mich.
WILLIAMS-Whittlesey Co., Long Island City, N. Y.
WOLVERINE Motor Works, 130 So. Front St., Grand Rapids, Mich.
WOOD, B. F., City Island N. Y.
WRIGHT, U. G., Paulsboro, N. J.
YACHT, Launch & Eng. Co., Philadelphia, Pa.

MOTORCYCLES

AMERICAN Motor Co., Brockton, Mass.
ANTONY Motor & Mfg. Co., Colorado Springs, Colo.
ARMAC Motor Co., cor. Sheldon and Carroll Aves., Chicago, Ill.
AURORA Automatic Machine Co., Aurora, Ill.
BRADLEY, C. E., Motor Co., 268 Diamond St., Philadelphia, Pa.
BUCKEYE Motor Co., 201 S. High St., Columbus, O.
CONSOLIDATED Mfg. Co., Toledo, O.
CURTISS, G. H., Mfg. Co., Hammondsport, N. Y.
DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.
DUSENBERG, A. S., Garner, Ia.
GEER CO., Harry R., 1018 Pine St., St. Louis, Mo.
GRAY & Crouch, Stoneham, Mass.
GREAT Western Mfg. Co., La Porte, Ind.
HARLEY-Davidson Motor Co., 315 39th St., Milwaukee, Wis.
HENDEE Mfg. Co., 216 Worthington St., Springfield, Mass.
HUDSON Mfg. Co., Hudson, Mich.
MAYO Damper Co., 255 Walnut St., Pottstown, Pa.
MERKEL Motor Co., 1095-1097 26th Ave., Milwaukee, Wis.
METZ, C. H., Waltham, Mass.
MITCHELL Motor Car Co., Racine, Wis.
PHILLIPS & Hamilton, Bradford, Pa.
PIONEER Motor Cycle Co., 290 Grove St., Jersey City, N. J.
POPE Mfg. Co., Hartford, Conn.
POPE Mfg. Co., Wells & Siegel, Chicago, Ill.
RAZOUX, Charles L., 446 Tremont St., Boston, Mass.
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BROWN Mfg. Co., J. W., Columbus, O.
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DIETZ, R. E., 33 Laight St., New York.
EDMUNDS & Jones Mfg. Co., 315 Riopelle St., Detroit, Mich.
FUNKE, A. H., 83 Chambers St., New York.
GRAY & Davis, Amesbury, Mass.
HINE-Watt Mfg. Co., 58 Wabash Ave., Chicago, Ill.
MANHATTAN Brass Co., 328 E. 28th St., New York City.
MANHATTAN Lamp Works, 530 W. 28th St., New York City (see page 106).
MILLER Mfg. Co., Peekskill, N. Y.
MOORE & Son Co., M. E., Westfield, Mass.
RICHMOND (Ind.) Mfg. Co., Richmond, Ind.
ROSE Mfg. Co, 910 Arch St., Philadelphia, Pa.
RUSHMORE Dynamo Works, Plainfield, N. J.
SCOVILLE & Peck Co., New Haven, Conn.
STANDARD Carriage Lamp Co., 43-49 S. Canal St., Chicago, Ill.
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ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).
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BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.
CLUM & Atkinson, Rochester, N. Y.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
KEYSTONE Brass Foundry Co., 188 Berks St., Philadelphia, Pa.
LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 21).
NEW JERSEY ALUMINUM Co., 19th St. and Springfield Ave., Newark, N. J.
OBERDORFER Brass Co., M. L., 804 E. Water St., Syracuse, N. Y.
PIONEER Brass Works, Indianapolis, Ind.
PITTSBURG Reduction Co., Pittsburg, Pa.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 33).
U. S. ALUMINUM Casting Co. (The), Cincinnati, O.
U. S. BRONZE Co., Cleveland, O.

AMMETERS AND VOLTMETERS

AMERICAN Coil Co., Foxboro, Mass.
AUTOMOBILE Equipment Co., 263 Jefferson Ave. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BRISTOL Co., Waterbury, Conn.
CAPITOL Elec. Engineering Co., Lansing, Mich.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 35).
DONGAN Instrument Co., Albany, N. Y.
DOW Portable Elec. Co., Braintree, Mass.
ELDREDGE Electric Mfg. Co., 227 Main St., Springfield, Mass. (see page opposite).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FORT WAYNE Electric Works, Fort Wayne, Ind.
GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
GENERAL Electric Co., Schenectady, N. Y.
JEWELL Elec. Instrument Co., Chicago, Ill.
KENDRICK & Davis, Lebanon, N. H.
KENT Mfg. Co., Atwater, 50 N. 6th St., Philadelphia, Pa. (see page opposite).
KEYSTONE Electrical Instrument Co., Philadelphia, Pa.
MORE-Power Co., 619 Gorham St., Lowell, Mass.
NORTON Electrical Instrument Co., Manchester, Conn.
PIGNOLET, Louis M., 78 Cortlandt St., New York, N. Y.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
ROBERT Instrument Co. (The), 56 Shelby St., Detroit, Mich.
QUEEN & Co., Philadelphia, Pa.
RUBAY, Leon, 136 West 38th St., New York City (Importer).
S. E. I. Co., Syracuse, N. Y.
STANLEY Elec. Mfg. Co., Pittsfield, Mass.
STERLING Electric Mfg. Co., 345 Huron St., Cleveland, O.
TALMONT Elec. Eng. Co., 88 Centre St., New York.
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WHITNEY Electrical Instrument Co., Concord, N. H.

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LEATHER Tire Goods Co., Newton Upper Falls, Mass.
Le Marquis Tire Co., 32 West 33d St., New York.
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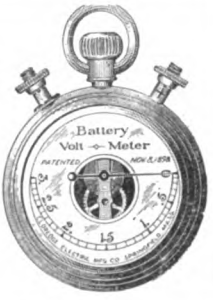

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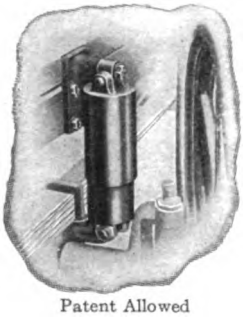

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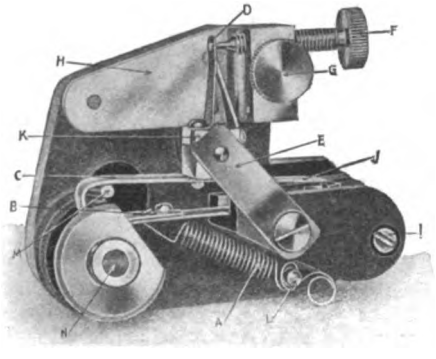

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APRONS (Storm)

AUTO. Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).
FAIRFIELD Rubber Co., Fairfield, Conn.
GILBERT Mfg. Co., New Haven, Conn. (see page 93).
KROH, C. Z., Mfg. Co. (The), 120 St. Clair St., Toledo, O.
PERFECTION Storm Shield Co., Clyde, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
VEHICLE Apron & Hood Co., Columbus, O.
VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.
WILEY & Son Co., Wm. H., Hartford, Conn. (see page 93).
WOOD & Son, Fred'k R., 219 W. 19th St., New York City.

ASBESTOS

ASBESTOS Mfg. Co., Philadelphia, Pa.
CAREY Mfg. Co., Philip (The), Lockland, O.
GILMOUR Co., R. M., New York, N. Y.
JOHNS-Manville, H. W., Co., 100 William St. N. Y. City.
KEASBY & Mattison Co., Ambler, Pa.
NEW Jersey Asbestos Co., Camden, N. J.
N. Y. ASBESTOS Mfg. Co., 123 Cortlandt St., N. Y. City.
WATSON, H. F., Co., Erie, Pa.

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AMERICAN Air Tool Co., Dunkirk, N. Y.
AMERICAN Ball Bearing Co., Cleveland, O.
AMERICAN Roller Bearing Co., So. Framingham, Mass.
CONCORD Axle Co., Concord, N. H.
CONSOLIDATED Mfg. Co., Toledo, O.
GARFORD Co. (The), Elyria, O. (see page 7).
GILL & Sons Forge & Machine Works, P. H., Brooklyn, N. Y.
Hussey Drop Forge & Mfg. Co., Cleveland, O.
KINSEY Mfg. Co., Dayton, O. (see back cover).
LEE & Porter, Buchanan, Mich.
MACHINERY Forging Co., Hamilton and Marquette Sts., Cleveland, O.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
REESE Mach. & Tool Works, 224 Main St., Plymouth, Pa.
SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page 103).
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.
TIMKEN Roller Bearing Axle Co., Canton, O.
WEBSTER Mfg. Co., 1075 West 15th St., Chicago, Ill.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

AXLES (Ball Bearing)

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CASE Mfg. Co., Curtis and Lexington Aves., Columbus, O.
GARFORD Co. (The), Elyria, O. (see page 7).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
KIMBARK Co., S. D., 80-84 Mich. Ave., Chicago, Ill.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
SMITH CO., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th and Girard Ave., Philadelphia, Pa.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

AXLES (Roller Bearing)

AMER. Roller Bearing Co., So. Framingham, Mass.
CASE Mfg. Co., Curtis and Lexington Ave., Columbus, O.
CONSOLIDATED Mfg. Co., Toledo, O.
DALZELL Axle Co., So. Egremont, Mass.
MOFFETT Vehicle Bearing Co., Saginaw, W. S., Mich.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th St. & Girard Ave., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
WESTON-Mott Co., Utica, N. Y. (see page opposite).

BALLS (Steel)

AMERICAN Ball Bearing Co., Cleveland, O.
AMERICAN Ball Co., Eagle St. and Kingsley Ave., Providence, R. I.
BOSTON Gear Works, Boston, Mass.
EXCELSIOR Machine Co., Military Road, Buffalo, N. Y.
JONES & Co., E. J., Arlington Heights, Mass.
STANDARD Roller Bearing Co., Philadelphia, Pa.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 61).

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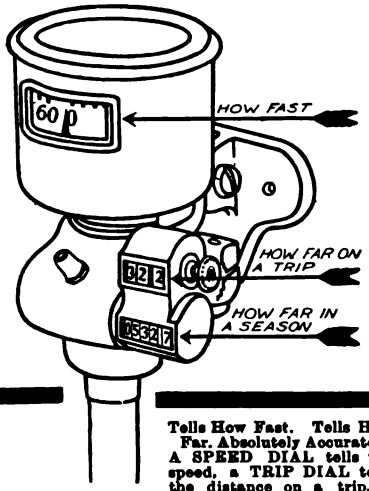

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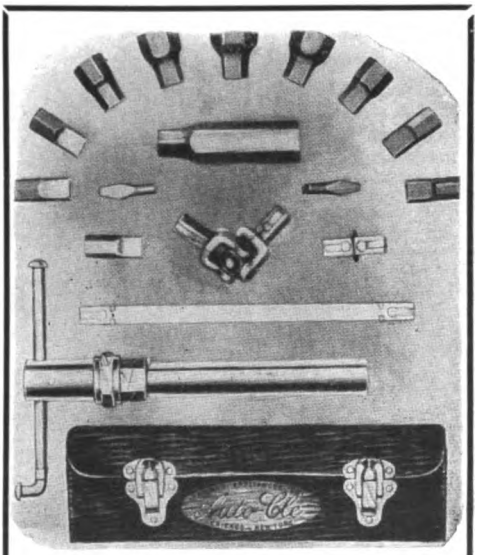

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DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co. (The), Braintree, Mass.
EASTERN Carbon Wks., W. Bergen, Jersey City, N. J.
EDISON Mfg. Co., Orange, N. J.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.
ELECTRIC Storage Battery Co., Philadelphia, Pa.
EXCELSIOR Dry Battery Co., 34 Vesey St., New York City.
FORTO Electric Co., 52 Water St., N. Y. City.
GORDON Battery Co., 439-445 E. 144th St., N. Y. City.
HAWES Electric Co., 137 State St., Springfield, Mass.
HUSSEY Dynamo Battery Co. (The), 39 Cortlandt St., N. Y. City.
LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.
NATIONAL Carbon Co., Cleveland, O. (see page 47).
NEW Excelsior Dry Battery Co., 32 Vesey St., N. Y. City.
NON-POLARIZING Co., 28 Broome St., New York City.
NOVELTY Electric Co., Phila., Pa.
NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O. (see page opposite).
ROCHE, Wm., 52-54 Park Place, N. Y. City.
ROCK Island Battery Co., Cincinnati, O.
ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 5).
SEMI-DRY Battery Co. (The), Newark, N. J.
SWAN Elec. Co., 21 State St., New York, N. Y.
U. S. Battery Co. (The), New Rochelle, N. Y.
WESCO Supply Co. (The), 7th St. & Clark Ave., St. Louis, Mo.

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AMERICAN Battery Co., 172 South Clinton, Chicago, Ill.
BADT-Goltz Engineering Co., 1504 Monadnock Bldg., Chicago, Ill.
BATTERY Power Co., 247-253 Madison St., Milwaukee, Wis.
CHICAGO Battery Co., Michigan Ave & 14th St., Chicago, Ill.
CHICAGO Pneumatic Tool Co., Fisher Bldg., Chicago, Ill.
CLARK, A. F. & Co., 2130 W. Susquehanna Ave., Philadelphia, Pa.
COLUMBUS Storage Battery Co., Columbus, Ohio.
CROFTAN Storage Battery Co., Toronto, Canada.
CROWDUS Storage Battery Co., 541 Wabash Ave., Chicago, Ill
DAYTON Electrical Mfg. Co., Dayton, O.
DAYTON Mfg. Co., 2240 E. 3d St., Dayton, O.
EDISON Storage Battery Co., Orange, N. J.
ELECTRIC Storage Battery Co. (The), Allegheny Ave and 19th St., Philadelphia, Pa.
ELECTRIC Vehicle & Supply Co., 4th and Prairie Sts., Milwaukee, Wis.
EMPIRE Storage Battery Co., 42 E. 23d St., N. Y. City.
G. & C. Dry Battery Mfg. Co., 57 W. 3d St., N. Y. City.
GOULD Storage Battery Co., 25 West 33d St., N. Y. City.
HASCHKE Compound Storage Battery Co., 89 Ashland Blvd., Chicago, Ill.
HATCH Accumulator Co., Charlestown, Boston.
HELIOS Mfg. Co., Bridesburg, Pa.
HERZ & Co., Elm and Marion Sts., N. Y. City (Importers).
LITTLE Giant Storage Battery Co., 1255 Mich. Ave., Chicago, Ill.
LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.
MACRAE, Hector, 316 St. Paul St., Baltimore, Md.
MICHIGAN Storage Battery Co., 211 Jefferson Ave., Detroit, Mich.
NATIONAL Battery Co., 268-282 Mass. Ave., Buffalo, N. Y.
NATIONAL Electric Supply Co., Washington, D. C.
NEW England Motor Co. (The), 82 Fletcher St., Lowell, Mass.
NORTHWESTERN Storage Battery Co., 285 E. Madison St., Chicago, Ill.
PERRETT Storage Battery Co., 17 State St., N. Y. City.
PILE Bloc Co., 253 B'way, New York.
PORTER Battery Co., 195 S. Canal St., Chicago, Ill.
ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 5).
RUBAY, Leon, 136 West 38th St., N. Y. City (Importer).
RUCKERT, G. R., 13 E. 39th St., N. Y. City.
RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.
SMITH Storage Battery Co., 198 State St., Binghamton, N. Y.
STORAGE Battery Supply Co., 239 East 27th St., N. Y. City.
TOLEDO Storage Battery & Elec. Co., 102 Ottawa St., Toledo, O.
TRAY Plate Battery Co. (The), 5 Frederick St., Binghamton, N. Y.
U. S. Battery Co., New Rochelle, N. Y.
UNIVERSAL Elec. Storage Battery Co., 1355 Railway Exchange, Chicago, Ill.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WESTERN Storage Battery Co., Indianapolis, Ind.
WILLARD Storage Battery Co. (The), Cleveland, O.
WITHERBEE Igniter Co., 541 West 43d St., N. Y. City (see page opposite).

BEARINGS (Ball)

AMERICAN Ball Co., Providence, R. I.
AMERICAN Ball Bearing Co., Cleveland, O.
AUBURN Ball Bearing Co., Crane Bldg., Auburn, N. Y.
BANTAM Anti-Friction Co., Bantam, Conn.
CHAPMAN Double Ball Bearing Co., Sudbury St., Boston, Mass.
HESS-Bright Mfg. Co., 245 N. Broad St., Philadelphia, Pa.
LEE & Porter, Buchanan, Mich.

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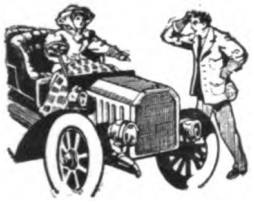

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PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.
PRESSED Steel Mfg. Co., 545 The Bourse, Philadelphia, Pa.
REESE Machine & Tool Works, Plymouth, Pa.
SARTUS Ball Bearing Co., 155 Spring St., N. Y. City.
STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.
STAR Ball Bearing Axle Co., Princeton, Ill.
WORCESTER Pressed Steel Co., Worcester, Mass.

BEARINGS (Bronze)

ADVANCE Mfg. Co., Kalamazoo, Mich.
ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 31).
BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.
CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.
CLARK, John W., Albany, N. Y.
CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.
CRAMP, Wm. & Sons, Ship & Engine Building Co., Philadelphia, Pa.
Hofeller-Brooks Brass Fery. Co., 74-78 Fort St.,E. Detroit, Mich. (see page 27).
HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.
LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page opposite).
PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.
PIONEER Brass Works, Indianapolis, Ind.
PROVIDENCE Brass Fdry. & Mach. Co., Providence, R. I.
REEVES & Son, Paul S., 1415 Catharine St., Philadelphia, Pa.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 33).
WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

BEARINGS (Roller)

AMERICAN Roller Bearing Co., South Framingham, Mass.
BANTAM Anti-Friction Co., Bantam, Conn.
CONCORD Axle Co., 26 Crescent St., Penacook, N. H.
HUTCHINSON Mfg. Co., J., Jackson, Mich.
HYATT Roller Bearing Co., Harrison, N. J.
MOFFETT Vehicle Bearing Co., 922 S. Niagara St., Saginaw, Mich.
PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.
STANDARD Roller Bearing Co., Girard Ave. and 48th St., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
WAGNER Mfg. Co., 5-7 Prospect St., Rochester, N. Y.
WRIGHT Taper Roller Bearing Co., Mutual Life Bldg., Buffalo, N. Y.

BELLS

ANSONIA Electrical Co., Ansonia, Conn.
BEVIN Bros. Mfg. Co., East Hampton, Conn.
BRIDGEPORT Brass Co., Bridgeport, Conn.
COLE & Son, Rockford, Ill.
EAST Hampton Bell Co. (The), East Hampton, Conn.
EDWARDS & Co., 405 E. 144th St., N. Y. City.
GONG Bell Mfg. Co., East Hampton, Conn.
HILL, N. N., Brass Co., East Hampton, Conn.
HOLTZER-Cabot Electric Co., Brookline, Mass.
LIBERTY Bell Co., Bristol, Conn.
MOSSBERG, Frank, Co., Attleboro, Mass. (see page 17).
NEW Departure Mfg. Co., Bristol, Conn.
PROCTOR-Raymond Mfg. Co., Detroit, Mich.
STARR Bros. Bell Co., East Hampton, Conn.

BODIES (Wood and Metallic)

ABRESCH Co., Charles, 398 4th St., Milwaukee, Wis.
AMERICAN Veneer Co., Kenilworth, N. J.
ARMSTRONG, M., & Co., 433 Chapel St., New Haven, Conn.
AUTO Body Co. (The), Franklin Ave., Lansing, Mich.
A-Z Co. (The), 462 11th Ave., N. Y. City.
BIDDLE and Smart Co., Amesbury, Mass.
BORBEIN, H. F., & Co., St. Louis, Mo.
BORCHERS Tonneau Mfg. Co., Dayton, O.
BRIGGS Carriage Co., Amesbury, Mass.
BUCKEYE Carriage Body Co., Bellefontaine, Ohio.
BUOB & Scheu, 408 E. Court St., Cincinnati, Ohio.
CARLISLE Body & Gear Wks., Carlisle, Pa.
CARRIAGE Woodstock Co., Owensboro, Ky.
CARTIER, Chapman & Co., Ludington, Mich.
CENTRAL Mfg. Co., Connersville, Ind.
CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.
CRAWFORD, G. W. & H. D., Delhi, N. Y.
CRUMRINE Cycle Co., 110 Washington Ave., Greenville, O.
CURRIER-Cameron Co. (The), Amesbury, Mass.
DANN Bros. & Co. (The), 80-88 Franklin St., New Haven, Conn.
DEMOREST, A. L., New Haven, Conn.
DETROIT Carriage Co., Detroit, Mich.
ECLIPSE Buggy Co., Fort Wayne, Ind. (see page 95).
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
EXCELSIOR Seat Co., Columbus, O.
FORD Mfg. Co., Kalamazoo, Mich.
FOSTORIA Fdry. & Mach. Co., Fostoria, O.
FRANTZ Body Mfg. Co. (The), Akron, O.
GOOLD, James Co., Albany, N. Y.
HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.
HOLCOMB, H. C., 105 Goffe St., New Haven, Conn.
HORTON, H. A., 127-131 Park St., New Haven, Conn.
HOWARTH & Rogers, Amesbury, Mass.
JACKSON Body Co., Jackson, Mich.
KEYSTONE Wagon Wks., Reading, Pa.
KILLAM, Henry, Chestnut & Wooster Sts., New Haven, Conn.
KIMBALL & Co., C. P., 315 Michigan Ave., Chicago, Ill.
KIMBARK, S. D., 80-84 Michigan Ave., Chicago, Ill.
KOEN, James R., 1257 Niagara St., Buffalo, N. Y.
KUNDTZ, Theo., Cleveland, O.
LANE, T. W., Amesbury, Mass.
LAPORTE Carriage Co., Laporte, Ind.
LAWRENCE & Co., L., Newark, N. J.

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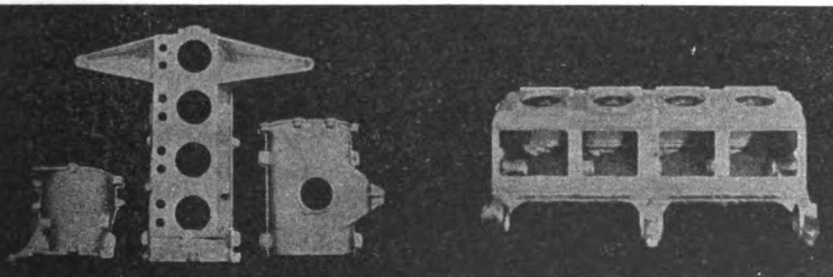

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LEITCH Mfg. Co., Amesbury, Mass.
LIMOUSINE and Carriage Mfg. Co., Chicago, Ill.
LOCKE & Co., 218 W. 84th St., N. Y. City.
MICHIGAN Automobile Body Co. (The), 1425-41 Gratiot Ave., Detroit, Mich.
MIDDLETOWN Auto Body Co., Middletown Conn.
MILLER, A. J., Bellefontaine, O.
MINOGUE Body & Seat Co., Kansas City, Mo.
MOORE & Munger Co., 602 W. 52d St., New York.
NEUSTADT Mfg. Co., 826-30 S. 18th St., St. Louis, Mo.
NEW Haven Carriage Co., New Haven, Conn.
NEWTON, W. H., & Son, 127 Elm St., Cortlandt, N. Y.
NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.
NOVELTY Mfg. Co., Racine, Wis.
OHIO Scroll & Lumber Co., Covington, Wy.
OHIO Carriage Body Co., Bellfontaine, O.
PEEZ & Hoffman, 3d St., near Fowler, Milwaukee, Wis.
PETZELT & Keyser, 24th & Locust Sts., Philadelphia, Pa.
PITTSBURGH Reduction Co., Pittsburgh, Pa.
PONTIAC Body Co., Pontiac, Mich.
QUINBY, J. M., & Co., 1534 Broadway, N. Y. City. Factory, Newark, N. J.
QUINSLER & Co., 26-30 Cambria St., Boston, Mass.
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
READING Metal Body Co., Reading, Pa.
RECH, Jacob & Sons, 8th St. & Girard Ave., Philadelphia, Pa.
RIVERSIDE Body Factory, Court & Wilkeson Sts., Buffalo, N. Y.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
SEABROOK & Smith Carriage Co., 126 Park St., New Haven, Conn.
SHIELDS Carriage Co. (The), Amesbury, Mass.
SPRINGFIELD Metal Body Co., Springfield, Mass.
STEWART, W. F. Body Co., Flint, Mich.
STONE & Sons, C., 167-177 Ogden Ave., Chicago, Ill.
STRATTON Carriage Body Co., Muncie, Ind.
STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.
TERRE Haute Carriage & Body Co., Terre Haute, Ind.
UNION Buggy Co., Pontiac, Mich.
WILCOX, M. E., Providence, R. I.
WILLOUGHBY Co., 86 Genesee St., Utica, N. Y.
WILSON, C. R., Body Co., Detroit, Mich.
WOGAMAN, J. Webster, Union City, Ind.
WOOD, A. M., 51 Beverly St., Boston, Mass.
WOOD & Son, Frederick R., 219-221 W. 19th St., New York City.
WRIGHT Carriage Body Co., Moline, Ill.
YORK Wagon & Gear Co., York, Pa.

BODY REBUILDING

AUTO-Rebuilding Co., 4105 Cottage Grove Ave., Chicago, Ill. (see page 87).

BOILERS

AMERICAN Boiler Co., 85 N. Kedzie Ave., Chicago, Ill.
BIGELOW Co. (The), New Haven, Conn.
BOSS Knitting Mach. Works, Reading, Pa.
FORG, Peter, Park St., Somerville, Mass.
FRANTZ Auto Co., Cherryville, Pa.
GENEVA Auto. Mfg. Co., Geneva, O.
HOLMES, J., & Co., 518 Broad St., Newark, N. J.
KILBURN, Edwin, Spring Valley, Minn.
KNAPP Mfg. Co., 2529 Polk St., N. E., Minneapolis, Minn.
LOCKE Regulator Co., Salem, Mass.
MILNE, Frank, Everett, Mass.
OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.
ROCHESTER Machine Tool Wks., Rochester, N. Y.
SCHAFFER Machine Mfg. Co. (The), 211 N. Calvert St., Baltimore, Md.
STEAM Carriage Boiler Co., Oswego, N. Y.
THROOP Perforating Co., 80 Terrace, Buffalo, N. Y.
TONKIN Boiler Co., Oswego, N. Y.
TREMAIN, C. J., Bradford, Pa.
UNITED Motor & Vehicle Co., 150 Nassau St., N. Y. City.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

BOILER TUBE EXPANDERS (See Tube Expanders)

BOLTS AND NUTS

AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.
ATLAS Bolt & Screw Co. (The), Cleveland, Ohio.
BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.
CHICAGO Screw Co, 2 Canal St., Chicago, Ill.
CLARK Bros. & Co., Milldale, Conn.
COLUMBIA Lock Nut Co., Bridgeport, Ct.
COLUMBIA Nut & Bolt Co., 25 Broad St., N. Y. City.
COLUMBUS Bolt Wks., 162 W. Randolph St., Columbus, O.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
DETROIT Screw Works, Detroit, Mich.
FRANKLIN Moore Co., Winsted, Conn.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
KIRK-Latty Co., Cleveland, O.
LAMSON & Sessions Co., 412-453 Scranton Ave., Cleveland, O.
NATIONAL Screw and Tack Co., Cleveland, Ohio.
PENINSULAR Milled Screw Co., Detroit, Mich.
PROGRESSIVE Mfg. Co., Torrington, Conn.
REPUBLIC Iron and Steel Co., Stock Exch. Bldg., Chicago, Ill.
RUSSELL, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
UPSON Nut Co., Unionville, Conn.
WESTERN Automatic Machine Screw Co., Elyria, O.
WORCESTER Machine Screw Co., Worcester, Mass.

BONNETS (Motor) (See Hoods)

BOOTS (See Cases, Engine, Gear and Chain)

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BEECHER, Walter N., 325 E. 25th St., Chicago, Ill.
BROWN & Co., S. N., Dayton, Ohio.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
CRANDALL, Stone & Co., Binghamton, N. Y.
TOPLIFF, I. N., Mfg. Co. (The), Cleveland, O.

BOXES (Spark Coil)

KUNDTZ, Theo., Cleveland, O.
MURRAY, W. F., 28 Beach St., Boston, Mass.
F. M. WEST Box Co., Springfield, Mass.

BRAKES

DUCK Brake Co., 335 Broadway, N. Y. City.
FRASER, Wm., Cedar St., Dobbs Ferry, N. Y.
GARAGE Equipment Co., 10 31st St., Milwaukee, Wis.
GARFORD Co. (The), Elyria, O. (see page 7).
GLOBE Mach. & Stamping Co., Cleveland, O.
GOULD, James, Co., Albany, N. Y.
MALTBY Automobile & Mfg. Co., Brooklyn, N. Y.
N. J. Automobile Co., 226-230 Halsey St., Newark, N. J.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
READING Automobile Co., Reading, Pa.
ROYAL Equipment Co., 165 Housatonic St., Bridgeport, Conn.
SMITH CO., A. O., Milwaukee, Wis.
TIVY Cycle Co., Williamsport, Pa.
U. S. Aluminum Castings Co. (The), Hamilton and Vandalia Aves., Cincinnati, O.
WHIPPLE, R. W., Binghamton, N. Y.
YOUSE, E. S., Reading, Pa.

BRAKE BANDS

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
ROSSENDALE-Reddeway Belting & Hose Co., Newark, N. J.

BRAKE DRUMS

CROSBY Co. (The), Buffalo, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass.

BRAKE LOCKS

GARAGE Equipment Co., Milwaukee, Wis.
READING Automobile Co. (The), 6 S. 5th St., Reading, Pa.
TURNER Brass Co., Franklin & Michigan Sts., Chicago, Ill.

BRASS AND COPPER (Sheet and Rod)

ANSONIA Brass & Copper Co., New York, N. Y.
BRIDGEPORT Brass Co., New York, N. Y.
BROOKLYN Brass & Copper Co., Brooklyn, N. Y.
COE Brass Mfg. Co., Torrington, Conn.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
HENDRICKS BROS., New York, N. Y.
HOLMES, Booth & Haydens Co., Waterbury, Conn.
HUSSEY & Co., C. G., Pittsburg, Pa.
MANHATTAN Brass Co., New York, N. Y.
NEW HAVEN Copper Co., Seymour, Conn.
PLUME & Atwood Mfg. Co., Waterbury, Ct.
RANDOLPH-Clowes Co., Rome, N. Y.
ROME Brass & Copper Co., Rome, N. Y.
SCOVILL Mfg. Co., Waterbury, Conn.
SEYMOUR Mfg. Co., Seymour, Conn.
TAUNTON-New Bedford Copper Co., Taunton, Mass.
WATERBURY Brass Co., Waterbury, Conn.

BRAZIERS

A-Z Co. (The), 462 11th Ave., N. Y. City.
BUFFALO Dental Mfg. Co., 587-589 Main St., Buffalo, N. Y.
CLAYTON & Lambert Mfg. Co., Detroit, Mich.
ENTERPRISE Machine Works, 308 N. 5th St., Richmond, Va.
INVINCIBLE Mfg. Co., Wilmington, Ill.
GARVIN Machine Co., Spring and Varick Sts., N. Y. City.
NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.
REECE, J. A., 716 A St., N. W., Washington, D. C.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
WHITE Mfg. Co., 72 So. Canal St., Chicago, Ill.

BRAZING COMPOUND

A. & J. Mfg. Co., 13 South Canal St., Chicago, Ill.
CORTLAND Specialty Co., 176 Railroad St., Cortland, N. Y.
DINGEE, M. H. Lynchburg, Va.
DIXON, Jos., Crucible Co., Jersey City, N. J.
FRANKLIN Moore Co., Winsted, Conn.
HOPKINS Bros.-Springer Co., Des Moines, Ia.
KREMBS & Co., 55 Waldo Pl., Chicago, Ill.
NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.
STANDARD Brazing Co., 88 Broad St., Boston, Mass.
STANDARD Carriage Lamp Co., 43 So. Canal St., Chicago.
WATERBURY Brass Co., Waterbury, Conn.

BRUSHES (Carbon)

NATIONAL Carbon Co., Cleveland, O. (see page 47).

BUCKETS (Collapsible)

ABERCROMBIE & Fitch, 316 B'way, N. Y. City.

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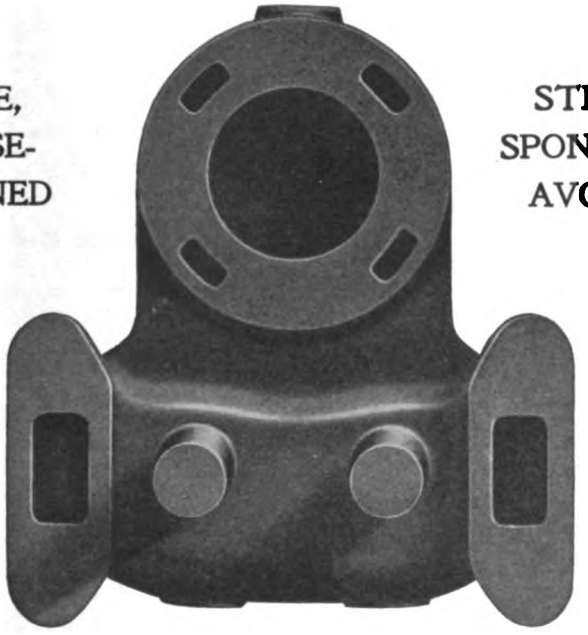

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GUTTA Percha and Rubber Mfg. Co., New York, N. Y.
HODGMAN Rubber Co., New York, N. Y.
KNOWLES, C. S., 7 Arch St., Boston, Mass.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
RUBBER Appliance Co., Springfield, Mass.
RUE Mfg. Co., 215 Race St., Philadelphia, Pa.
WATERBURY Brass Co., Waterbury, Conn.

BUMPERS

CALUMET Tire & Rubber Co., 43d and Wabonsia Aves., Chicago, Ill.
HARTFORD Rubber Wks. Co., Hartford, Conn.

BURNERS (Gasoline)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page opposite).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FORG, Peter, Park St., Somerville, Mass.
KELLY Handle Bar Co., Cleveland, O.
LOCKE Regulator Co., Salem, Mass.
NATIONAL Oil Burner & Equipment Co., St., Louis, Mo.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
TONKIN Boiler Co., Oswego, N. Y.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
UNITED Motor & Vehicle Co., 150 Nassau St., N. Y. City.
WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Kerosene)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page opposite).
BARRETT, Geo. J., 143 Queen St., Fredericton, N. B.
BOSS Steam Car Co., Reading, Pa.
CHICAGO Auto. Mfg. Co., 4120 State St., Chicago, Ill.
FRANTZ Mfg. Co., Cherryville, Pa.
GENEVA Auto. & Mfg. Co., Geneva, O.
GILBERT Co., P. H., 514 Adams Ave., Scranton, Pa.
JENKINS Automobile Co., Washington, D. C.
KEROSENE Power Co. of N. Y., 121 East 13th St., N. Y. City.
LIQUID Fuel Engineering Co., Bridgeport, Conn.
LYNN Auto. Co., 274 Broad St., Lynn, Mass.
NATIONAL Oil Burner & Equipment Co., St. Louis, Mo.
NATIONAL Oil Heating Co., Waltham, Mass.
NOVELTY Appliance Co., 369 Broadway, New York, N. Y.
OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.
STEAM Carriage Boiler Co., 119 West First St., Oswego, N. Y.
SUNSET Automobile Co., San Francisco, Cal.
TAUNTON Motor Carriage Co., Taunton, Mass.
TONKIN Boiler Co., Oswego, N. Y.
WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Gas Lamp)

ACETYLENE Gas Ill. Co., 105 Walker St., New York, N. Y.
AMERICAN Lava Co., Chattanooga, Tenn.
CARROLL, J. B., 136 Lake St., Chicago, Ill.
CRANE Co., W. N., 1131-1133 Broadway, N. Y. City.
KIRCHBERGER & Co., 50 Warren St., New York City.
STAR Acetylene Gas Burner Co., Chattanooga, Tenn.
STATE Line Talc. Co., Chattanooga, Tenn.
STEWART, D. M. Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.
SUNLIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

CANOPIES (See Tops)

CANS (See Oil Cans)

CANS (Waste)

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

CAPS (Auto)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page opposite).
DEMMERLE & Co., 248 W. 23d St., New York City.
DETROIT Cap Mfg. Co., 11-17 Woodbridge St., W., Detroit, Mich.
DETROIT Motor Car Supply Co., 1256 Jefferson Ave., Detroit, Mich.
DINNER, Isaac H. Co., 48-50 Summer St., Boston, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
KIBBE, C. S., Batavia, N. Y.
LASKY & Levy, 20 and 22 Waverly Place, New York City.
LILLEY Co., M. C., Columbus, O.
MAXFIELD & Co., Glen C., 170 E. Madison St., Chicago, Ill.
MORAWETZ Co. (The), Milwaukee, Wis.
PONTIAC Knitting Co., Pontiac, Mich.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
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B-R 9-inch wrenches. Polished finish. Price, postpaid, 75c. Besides several different finishes of above we also make the same style in 18-inch and similar ones in 11 and 14-inch, with tire lever handles. Forged from high carbon steel, carefully machined, accurately fitted and handsomely finished.

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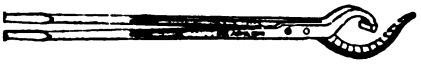

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ALUMINUM and BRASS FOUNDRY CO.

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Castings Made Accurately to Patterns

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SCANDINAVIAN Fur & Leather Co., New York, N. Y.
SHAW, Ora D., 109 Kingston St., Boston, Mass.
SPRINGFIELD Hat & Cap Co., 27-35 Taylor St., Springfield, Mass.
WANCKEL, Manfred, 640 Madison Ave., New York City.

CARBIDE

ACETYLENE Gas Ill. Co., 105 Walker St., New York.
AMERICAN Carbolite Co., Constantine, Mich.
UNION Carbide Co., Michigan Ave. and Adams St., Chicago, Ill.

CARBURETERS

A. & J. Mfg. Co., 13 South Canal St., Chicago, Ill.
ASTER Co., 1591 Broadway, N. Y. City.
AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.
AUTO Brass & Aluminum Co., Flint, Mich.
AXIOM Carbureter Mfg. Co. (The), 106 E. 28th St., N. Y. City.
BOSTON Mechanical Co., 20 Park Sq. Motor Mart, Boston, Mass. (see page 45).
BOWEN Mfg. Co., 92 Baynes St., Buffalo, N. Y.
BRADFORD Motor Works, Bradford, Pa.
BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.
BROOKLYN Coil & Carbureter Co., 77-79 Adams St., Brooklyn, N. Y.
BUCKEYE Motor Co., 201 South High St., Columbus, O.
BUFFALO Carbureter Co., 889 Main St., Buffalo, N. Y.
BYRNE, Kingston & Co., Kokomo, Ind.
CAMDEN Anchor-Rockland Co., Rockland, Me.
CLARK Carbureter Co., 36 Viaduct, Cleveland, O.
CLEMICK-Hirsch Co., Milwaukee, Wis.
CONTINENTAL Engine Co., Huron & Kingsbury Sts., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
CULVER Novelty Co., Culver, Ind.
CURTIS Mfg. Co., G. H. Hammondsport, N. Y.
DALEY, Walter A., 306 Chicago Opera House Building, Chicago, Ill.
DEARBORN, F. A., Old South Bldg., Boston, Mass.
DES MOINES Auto. Co., 409-11 9th St., Des Moines, Ia.
ESSEX Brass Co., G. B., Detroit, Mich.
FAIRMONT Auto. Co., Diamond and Van Pelt Sts., Philadelphia, Pa.
FAST, Otto, Greenfield and 25th Aves., Milwaukee, Wis.
GIANT Motor Co., Newark, N. J. (see page 45).
GODDU Bros., Winchester, Mass.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HEATH Co. (The), Saratoga Springs, N. Y.
HERZ & Co., Elm and Marion Sts., N. Y. City.
HOLLEY Bros., 661-673 Beaubein St., Detroit, Mich.
ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.
IMPERIAL Brass Mfg. Co., 257 So. Jefferson St., Chicago, Ill. (see page 73).
JOHNSTON Mach. Co., 86 High St., Woodbury, N. J.
KAESTNER Mfg. Co., Chas., South Bend, Ind.
KAUFMAN, Chas., Oshkosh, Wis.
LAKEVIEW Auto. Co., 1045 Sheffield Ave., Chicago, Ill.
LAMSON Mach. Co., Abington, Mass.
LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.
LEE Mfg. Co. (The), South Park, Port Huron, Mich.
LIPMAN, Carl E., Beloit, Wis.
LOCKE Regulator Co., Salem, Mass.
LOOMIS Autocar Co., Westfield, Mass.
LUNKENHEIMER Co. (The), 213-223 E. 8th St., Cincinnati, O.
LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.
MASSNICK Mfg. Co., 671 E. Atwater St., Detroit, Mich.
MAXWELL & Fitch Co. (The), 213 So. Washington St., Rome, N. Y.
MAYO Damper Co., 355 Walnut St., Pottstown, Pa.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).
MORGAN, B., 88 John St., Newport, R. I.
MUNCIE Auto Parts Co., Muncie, Ind.
NORTH Chicago Mach. Co., North Chicago, Ill.
POWER, J. J., 653 E. Main St., Madison, Wis.
RUBAY, Leon, 136 W. 38th St., N. Y. City (Importer).
SARIS, J. H., Beloit, Wis.
SHERWOOD Mfg. Co., Buffalo, N. Y.
SINTZ, Guy L., Fulton and Front Sts., Grand Rapids, Mich.
SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page opposite).
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
VAN DUZEN Gaso. & Gas Engine Co., State and Mill Sts., Cincinnati, O.
WESTERN Auto. Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Motor Co., Logansport, Ind.
WHEELER & Schebler, Indianapolis, Ind.
XARDELL, J. A. & C. A., Genesee, St., Utica, N. Y.

CARRIAGE HARDWARE

BLAKESLEE Forging Co., Plantsville, Conn.
CLEVELAND Hardware Co. (The), 1300 Lake St., Cleveland, O.
COLUMBUS Bolt Works, 162 W. Randolph St., Columbus, O.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
CORTLAND Carriage Goods Co., Cortland, N. Y.
CORTLAND Forging Co., Cortland, N. Y.
COWLES, C. & Co., New Haven, Conn.
DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 97).
EBERHARD Mfg. Co., Cleveland, O.
ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.
FRANKLIN Moore Co. (The), Winsted, Conn.
METAL Stamping Co., 468-472 W. B'way, N. Y. City.
MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 93).

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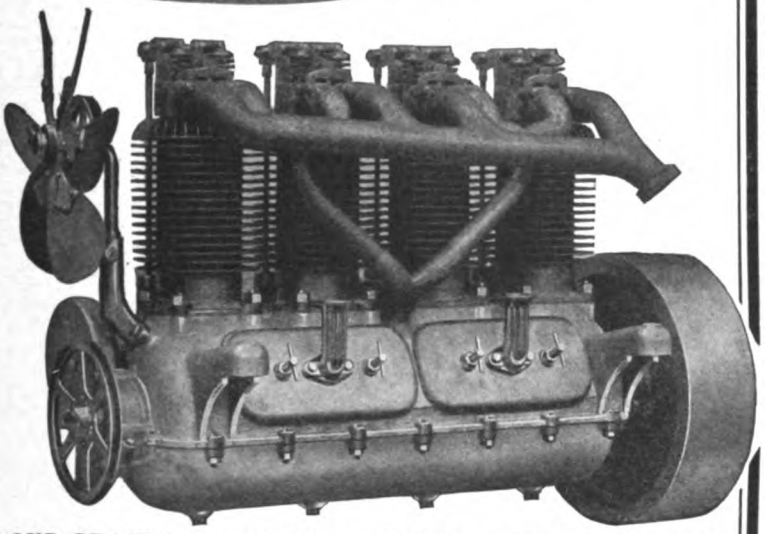
works 365 days a year



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To Increase the power of the engine,
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NEIDER Co., F. A. (The), Augusta, Ky. (see page 97).
NEW Britain Hardware Mfg. Co., New Britain, Conn.
ROEHM & Davison, Woodbridge & Wayne Sts., Detroit, Mich.
SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.
WING Co., Chas., Amesbury, Mass.

CASES (Engine, Gear and Chain)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DETROIT Auto. Top Co., Detroit, Mich.
REEDY, W. E., Lima, O.
WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

CASTINGS (Brass, Bronze, Aluminum and Copper)

ACORN Brass Mfg. Co., Chicago, Ill.
ALLEN Mfg. Co., W. D., 151 Lake St., Chicago, Ill.
ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page opposite).
ALUMINUM Foundry Co., Manitowoc, Wis.
AMERICAN Brass Fdry. Co., Hyde Park, Mass.
AMERICAN Fdry. & Mach. Co., Hanover, Pa.
AMERICAN Pin Co., Waterbury, Conn.
ATLAS Brass Foundry, 70 Frost St., Brooklyn, N. Y.
AUTO Brass & Aluminum Co., Beach & Mill Sts., Flint, Mich.
BELL & Fyfe Foundry Co., Kent Ave. & So. 11th Ct., Brooklyn, N. Y.
BREESE & Lawrence, 5 West 16th St., N. Y. City.
BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.
BUFFALO Combination Foundry Co., 135 Herman St., Buffalo, N. Y.
BURLINGTON Brass Co., Burlington, Wis.
CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.
CHICAGO Hardware Fdry. Co., North Chicago, Ill.
CLARK, John W., Albany, N. Y.
CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.
CRAMP & Sons Ship & Engine Building Co., Wm., Philadelphia, Pa.
CRESCENT Brass Mfg. Co., 7th, Spruce and Benjamin Sts., Reading, Pa.
DEVLIN, Thos. & Co., 3d St. & Lehigh Ave., Philadelphia, Pa.
ELKHART Brass Mfg. Co., Prospect St., Elkhart, Ind.
ELM CITY Brass Co., New Haven, Conn.
ENTERPRISE Foundry Co., Detroit, Mich.
EUREKA Tempered Copper Wks., Northeast, Pa.
FOREST City Brass Wks., Cleveland, O.
GAYLORD Co., F. L., Ansonia, Conn.
GERSON-Carey Co., Lansing, Mich.
GRAHAM, James & Co., 293 Wooster St., New Haven, Conn.
GRISWOLD Mfg. Co., Erie, Pa.
HENDRYX & Co., Andrew B., New Haven, Conn.
HOFELLER Brass Fdry. Co., 100 Terrace, Buffalo, N. Y.
HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 27).
HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.
IMPERIAL Brass Mfg. Co. (The), 251 So. Jefferson St., Chicago, Ill. (see page 73).
JEFFERSON Brass Foundry, Brooklyn, N. Y.
KEYSTONE Brass Fdry. Co., 188 Berks St., Philadelphia, Pa.
KOKOMO Brass Wks., 351 N. Smith St., Kokomo, Ind.
LANGSENKAMP Bros., 136-142 E. Georgia St., Indianapolis, Ind.
LIBERTY Bell Co., Bristol, Conn.
LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 21).
MANHATTAN Brass Co., New York, N. Y.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).
NATIONAL Car Wheel Co., Sayre, Pa.
NATIONAL Car Wheel Co., Rochester, N. Y.
NATIONAL Cycle Mfg. Co., Bay City, Mich.
NEW JERSEY Aluminum Co., 19th and Springfield Ave., Newark, N. J.
NOLTE Brass Co., Springfield, O.
NORWALK Brass Co., Norwalk, Conn.
OBERDORFER Brass Co., M. L., 804 East Water St., Syracuse, N. Y.
OHIO Brass Co., Mansfield, O.
PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.
PIONEER Brass Works, Indianapolis, Ind.
PITTSBURG Brass Mfg. Co., Pittsburg, Pa.
PITTSBURG Reduction Co., Pittsburg, Pa.
PROVIDENCE Brass Foundry & Machine Co., Providence, R. I.
RACINE Brass & Iron Co., Racine, Wis.
REEVES & Son, Paul S., 1415 Catherine St., Philadelphia, Pa.
ROGERS, C. E., Boston, Mass.
ROWELL Co., The W. G., 353 Water St., Bridgeport, Conn.
RYAN & Co., J. J., 68-74 W. Monroe St., Chicago, Ill.
SHERWOOD Brass Works, 1167 Jefferson Ave., Detroit, Mich.
SPENCER'S Sons, I. S., Guilford, Conn.
STANDARD Foundry Co., Hartford, Conn.
STOVER Mfg. Co., Freeport, Ill.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 33).
TURNER Brass Wks., Franklin & Michigan Sts., Chicago, Ill.
UNIQUE Metal Co., 89-91 Niagara St., Buffalo, N. Y.
U. S. Aluminum Castings Co., Hamilton & Vandalia Aves., Cincinnati, O.
U. S. Bronze Co., 149 Columbus St., Cleveland, O.
VINCENT Valve Co., Sandusky, O.
WALTHAM Brass & Aluminum Co., Waltham, Mass
WESTERN Brass Mfg. Co., 21st and Rockwell St., Chicago, Ill.
WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

CASTINGS (Gray Iron)

ACME Fdry. Co., Sweeney St., Cleveland, O.
AMERICAN Fdry. & Mach. Co., Hanover, Pa.
BARCUS & Co., Geo., Wabash, Ind.
BARLOW, Arthur E., Newark, N. J.
BELLE CITY Mfg. Co., Racine Junction, Wis.
BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.

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WAYNE	PUNGS-FINCH	JACKSON
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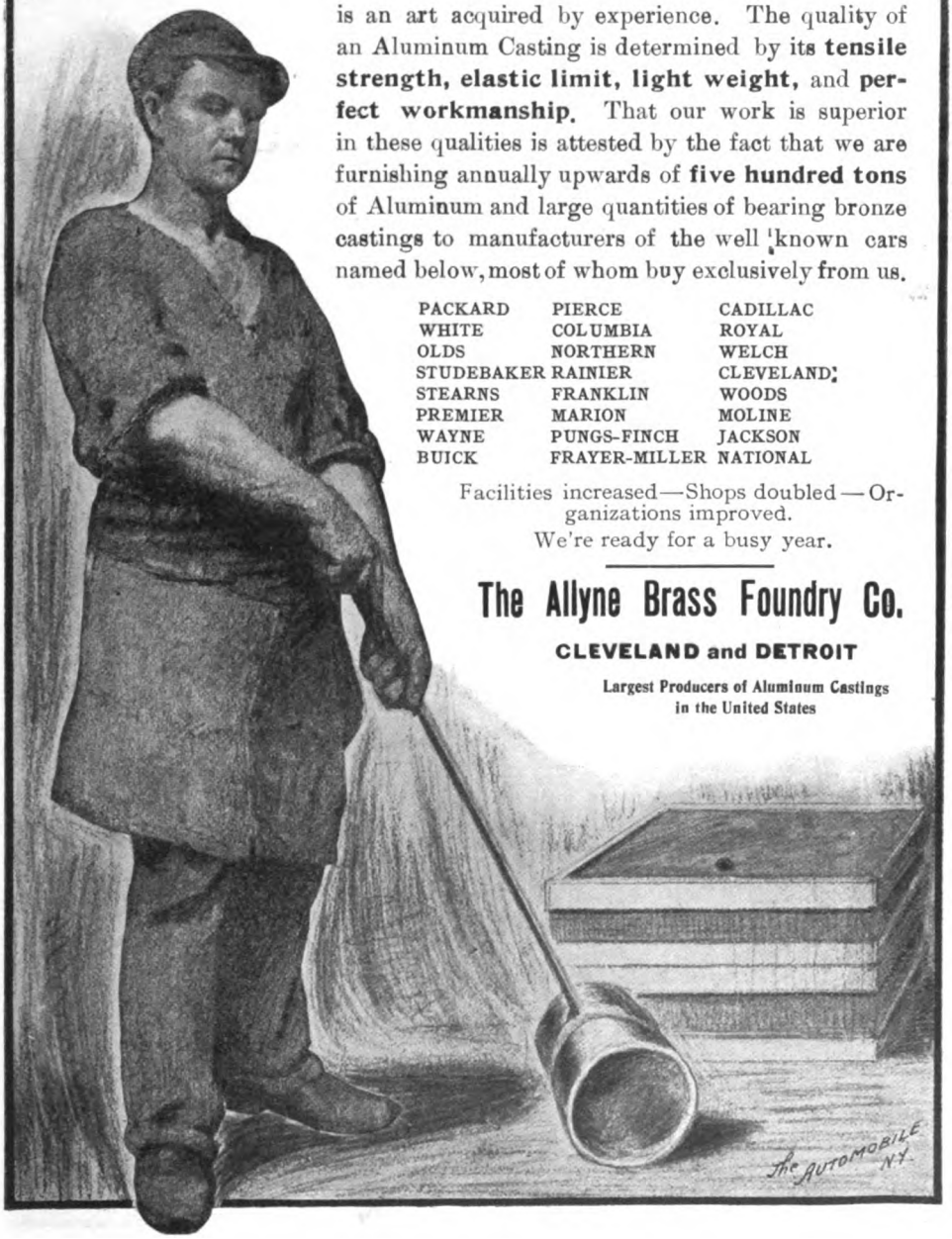

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BUFFALO Foundry Co., Buffalo, N. Y.
CAPITOL Foundry Co., Hartford, Conn.
CHICAGO Hardware Fdry. Co., North Chicago, Ill.
CRAMP & Sons Ship. & Eng. Bldg. Co., Wm., Philadelphia. Pa.
DAVENPORT Fdry. & Mach. Co., Davenport, Ia.
ENTERPRISE Fdry. Co., Detroit, Mich.
ERIE Fdry. Co., Erie, Pa.
FULTON Fdry. & Mach. Wks., 25 Furman St., Brooklyn, N. Y.
GREY Iron Castings Co., Mt. Joy, Pa.
HAYES Foundry Co., Lynn, Mass.
HOFFMAN Hinge & Fdry. Co., Cleveland, O.
HOLBROOK-ARMSTRONG Iron Co., Racine, Wis.
HOPSON & Chapin Mfg. Co., New London, Conn.
INTER-State Foundry Co., Cleveland, O.
LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page 25).
MANUFACTURERS' Fdry. Co., Waterbury, Conn.
MARINETTE Gas Eng. Co., Chicago Heights, Ill.
MEEKER Fdry. Co., 95 Clay St., Newark, N. J.
NATIONAL Car Wheel Co., Cleveland, O.
NATIONAL Car Wheel Co., Sayre, Pa.
PALMERS & De Mooy Fdry. Co., Cleveland, Ohio.
RACINE Brass & Iron Co., Racine, Wis.
SESSIONS Foundry Co., Bristol, Conn.
SPENCER'S Sons, I. S., Guilford, Conn.
STANDARD Fdry. & Mfg. Co., Cleveland, O.
STOVER Mfg. Co., Freeport, Ill.
STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.
TARRANT Foundry Co., Chicago, Ill.
UTICA Foundry Co., Utica, N. Y.
UTICA Steam Eng. & Boiler Wks., Utica, N. Y.
WILCOX, Crittenden & Co., Middletown, Conn.

CASTINGS (Malleable Iron)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.
ARCADE Malleable Iron Co., Worcester, Mass.
BARLOW, Arthur E., Newark, N. J.
BEAVER Dam Malleable Iron Co., Beaver Dam, Wis.
BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.
BUHL Malleable Iron Co., Detroit, Mich.
COLUMBUS Malleable Iron Co., Columbus, O.
DAYTON Malleable Iron Co., Dayton, O.
DEVLIN & Co., Thomas, 3d St. and Lehigh Ave., Philadelphia, Pa.
EBERHARD Mfg. Co. (The), Cleveland, O.
FLAGG & Co., Stanley G., Philadelphia, Pa.
FRAZER & Jones Co., Syracuse, N. Y.
HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.
ILLINOIS Malleable Iron Co., Chicago, Ill.
MALLEABLE Iron Fittings Co., Branford, Conn.
MEEKER Fdry. Co., 95 Clay St., Newark, N. J.
MINNESOTA Malleable Iron Co., St. Paul, Minn.
MOLINE Malleable Iron Co., St. Charles, Ill.
NATIONAL Malleable Castings Co., Cleveland, O.
NAUGATUCK Malleable Iron Co., Naugatuck, Conn.
NORWAY Iron & Steel Co., York, Pa.
ORISKANY Malleable Iron Co., Oriskany, N. Y.
OSHKOSH Malleable Iron Co., Oshkosh, Wis.
PORT HURON Engine & Thresher Co., Port Huron, Mich.
RACINE Malleable & Wrought Iron Co., Racine, Wis.
RHODE ISLAND Malleable Iron Wks., Hills Grove, R. I.
STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.
SYRACUSE Malleable Iron Wks., Syracuse, N. Y.
TRENTON Malleable Iron Co., Trenton, N. J.
WILMINGTON Malleable Iron Co., Wilmington, Del.

CASTINGS (Steel)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.
ADRIAN Steel Casting Co., Adrian, Mich.
AMERICAN Steel Castings Co., Chester, Pa.
ARCADE Malleable Iron Co., Worcester, Mass.
ATHA Steel Co., Newark, N. J.
BETHLEHEM Steel Co., So. Bethlehem, Pa.
CARPENTER Steel Co. (The), Reading, Pa.
CHESTER Steel Castings Co., Chester, Pa.
CHROME Steel Works, Brooklyn, N. Y.
CRUCIBLE Steel Castings Co., Milwaukee, Wis.
DEVLIN & Co., Thomas, 3d St., and Lehigh Ave., Philadelphia, Pa.
DUTCHER Co., J. A. & P. E., Milwaukee, Wis.
FERRO Carbon Castings Co., Frankford, Philadelphia, Pa.
FLAGG & Co., Stanley G., Philadelphia, Pa.
FRAZER & Jones Co., Syracuse, N. Y.
HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.
JOHNSON & Co., Isaac G., Spuyten Duyvil, N. Y.
JOHNSTON, Geo. H., P. O. Box 13, Sparrows Point, Md.
KING & Andrews Co., Chicago, Ill.
LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page 25).
LOGAN Mfg. Co., Phoenixville, Pa.
MACKINTOSH, Hemphill & Co., Pittsburg, Pa.
MASSACHUSETTS Steel Casting Co., West Everett, Mass.
MESTA Machine Co., Pittsburg, Pa.
MILWAUKEE Steel Fdry. Co., Milwaukee, Wis.
N. E. Steel Castings Co., Hdye Park, Mass.
N. E. STEEL Castings Co., 26 Cortlandt St., N. Y. City.
NEWARK Iron & Steel Co., Newark, O.
NEW JERSEY Steel Co., Rahway, N. J.
NORWAY Iron & Steel Co., York, Pa.
OTIS Steel Co., Cleveland, O.
PROVIDENCE Steel Castings Co., Providence, R. I.
RIVERSIDE Foundry, The, 451-473 Riverside Ave., Newark, N. J.
SMITH Steel Castings Co., Geo. H., 500 Clinton St., Milwaukee, Wis.
TAYLOR Iron & Steel Co., High Bridge, N. Y.
TOBIN-Gerlinger Steel Castings Co., West Allis, Wis.
TOOL Steel Castings Co., 90 Canal St., Boston, Mass.

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SILVER METAL

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SYRACUSE, N. Y.

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UNIFORM Steel Co., Newark, N. J.
WESTERN Malleable Steel Co., River and Clark Sts., Detroit, Mich.
WHITELEY Steel Co., Muncie, Ind.
WILMINGTON Malleable Iron Co., Wilmington, Del.
WORCESTER Steel Foundry Co., Worcester, Mass.

CEMENT (Tire)

AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.
ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BUFFALO Specialty Co., Buffalo, N. Y.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
G. A. HOSMER Co., 376 Ellicott St., Buffalo, N. Y.
MAGNET Cement & Dressing Co., 878 No. 48th St., Philadelphia, Pa.
NATIONAL Cement & Rubber Mfg. Co., Toledo, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).

CHAINS

BALDWIN Chain & Mfg. Co., Worcester, Mass.
DIAMOND Chain & Mfg. Co., Indianapolis, Ind.
DUCKWORTH Chain & Mfg. Co., Springfield, Mass.
LEFEVRE Arms Co., Syracuse, N. Y.
LINK Belt Engineering Co., Nicetown, Pa.
MORSE Chain Co., Trumansburg, N. Y.
WHITNEY Mfg. Co. (The), Hartford, Conn.

CHANNELS

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
AMERICAN Tube & Stamping Co., Bridgeport, Conn.
GARFORD Co. (The), Elyria, O. (see page 7).
STANDARD Welding Co., Cleveland, O.
WESTON-Mott Co., Utica, N. Y. (see page 17).

CHARGING EQUIPMENT (Electrical)

ADVANCE Mfg. Co., Hamilton, O.
BAKER Motor Vehicle Co., Cleveland, O.
BRONSON & Davis, 463 Fairmount Ave., Blue Island, Ill.
BULLOCK Electric Mfg. Co., Cincinnati, O.
ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.
GENERAL Elec. Co., Schenectady, N. Y.
GENERAL Power Co. (The), 100 William St., N. Y. City.
M'MULLIN Motive Power & Construction Co., 472 Carroll Ave., Chicago, Ill.
MERRIAM-Abbott Co., 60 E. Prospect St., Cleveland, O.
PIERCE-CROUCH Eng. Co., Penn Ave., New Brighton, Pa.
RICHARDSON Engineering Co., 36 Pearl St., Hartford, Conn.
ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.
WAGNER Electrical Mfg. Co., 2017 Locust St., St. Louis, Mo.
WESTINGHOUSE Electric & Mfg. Co., Pittsburg, Pa.

CHEMICALS (non-corrosive, de-odorizing)

NO-KO-RODE, Suite 826, 225 Dearborn St., Chicago, Ill. (see page 37).

CLEVICES (See Screw Mach. Products)

CLOCKS (Auto.)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
CHELSEA Clock Co., 16 State St., Boston, Mass. (Auto and Motor Boat) (see page opposite).
DOUBLE-Friction Coil Clutch Co., 45 Canal St., Chicago, Ill.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
LEVY, Manasseh, 182 Broadway, New York.
McGIEHAN Odometer & Mfg. Co., 137 W. 32d St., New York.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
THORN Mfg. Co., 5 Front St., Salem, Mass.
WILSON Auto. Clock Co., 935 Arch St., Philadelphia, Pa.
WHEELOCK Motor Car Clock Co., Tremont Bldg., Boston, Mass.

CLOTHING (Auto.)

AMERICAN Buffalo Robe Co., Buffalo, N. Y.
BISHOP & Co., The J. H., Wyandotte, Mich.
BRANN, E., 1225 Park Ave., N. Y. City.
BROOKS Bros., 22d St. & B'way, N. Y. City.
CROSBY Frisian Fur Co., 116 Mill St., Rochester, N. Y.
DAVIS Robe Co., The, Inc., 1307 Champlain Bldg., Chicago.
DEMMERLE & Co., 248 W. 23d St., N. Y. City.
DOUGHERTY & Colt Mfg. Co., 105 W. Bridge St., Columbus, O.
FULLER & Sullivan, 87 Summer St., Boston, Mass.
GILBERT Mfg. Co., New Haven, Conn. see page 93).
GILMAN, J. C. & Co., 107 Albany St., Boston, Mass.
GUNTHER'S Sons, G C., 184 5th Ave., N. Y. City.
HANSEN Mfg. Co., O. C., 356 E. Water St., Milwaukee, Wis. (see page 49).
HODGMAN Rubber Co., 806 Broadway, N. Y. City.
JOHNSON Co., H. S., Peabody, Mass.
LADIES' Supply Co., 3118-3120 Forest Ave., Chicago, Ill.
LILLEY, M. C., & Co., Columbus, O.
MACULLAR-Parker Co., Boston, Mass.

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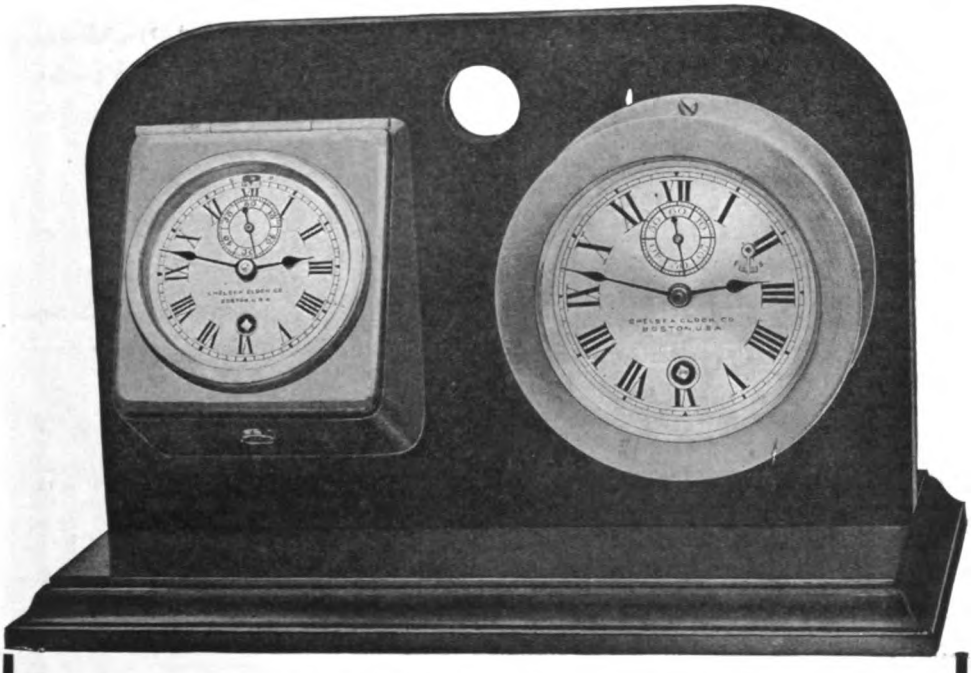

$2\frac{3}{4}$ inch "SPECIAL" BEST in the WORLD. PRICE. - - $36.00
Has Locked Case. Shows Dial on an Angle.

$3\frac{1}{2}$ inch Motor Clock For MOTOR Boats and Cars
8-Day, High Grade. Price, $24.00

8-DAY—HIGH GRADE—YOU WANT THE BEST?

ASK FOR

THE "CHELSEA" AUTO CLOCK

(TRADE MARK)

THE above illustration shows the $2\frac{3}{4}$ inch "SPECIAL" and the $3\frac{1}{2}$ inch "MOTOR" Clock. All sizes stated are "Dial" sizes. Also two other AUTO CLOCKS, very high grade, and quite similar in appearance to the above illustration of the $3\frac{1}{2}$ inch Motor Clock, viz.:—

$2\frac{3}{4}$ inch, $26. $3\frac{1}{2}$ inch, $28.

All have polished Cast Brass Duplex (patent applied for) Screw Bezel Cases (the most thoroughly water-proof case on the market), and the $2\frac{3}{4}$ inch "Special" Auto Clock, also is in an outer (locked) case showing dial on an angle of about 35 degrees, and when not in use on car may be removed from its outer (locked) case and makes an attractive 8-day reliable clock for use on desks, mantels, bureaus, etc., etc., a feature that will be appreciated by tourists.

The $3\frac{1}{2}$ inch MOTOR CLOCK is almost identical in size and appearance with the $3\frac{1}{2}$ inch Auto Clock, but is not quite as high geared; it is the same clock as we sell for the hard use on locomotives, steam fire engines, etc., etc. ESPECIALLY good for use on MOTOR BOATS.

$3\frac{1}{2}$ in. Motor Clock, $24 $3\frac{1}{2}$ in. Auto Clock, $28
$2\frac{3}{4}$ in. Auto Clock, $26 $2\frac{3}{4}$ in. "Special" AUTO CLOCK, $36

Wood Stands, if wanted by Dealers, viz.: for showing two clocks, $2.00; for showing one clock, $1.50

You Own a Good Motor Car? Equip it with the BEST CLOCK

☞ MAKE APPROPRIATE PRESENTS OR PRIZES FOR REGATTAS, RACES, ETC.

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Largest Makers in America of Exclusively High Grade 8-Day

Striking Ship's Bell Clocks—Marine Clocks and Auto Clocks

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MILLER, Chas. E., 97 Reade St., N. Y. City (Dealer and Jobber).
MOORE-Smith Co., Boston, Mass.
MORAWETZ Co. (The), Milwaukee, Wis.
N. Y. Leather Coat Co., 207 Greene St., New York.
OUR OWN Mfg. Co., New York.
PEERLESS Clothing Co., Boston, Mass.
ROGERS, Peet & Co., N. Y. City.
RUSZITS, John, Fur Co., 73-77 Mercer St., N. Y. City.
SAKS & Co., 34th St. & B'way, N. Y. City.
SCANDINAVIAN Fur & Leather Co., 16 W. 33d St., New York, N. Y.
SCOTT-Muffler Co. (The), Portsmouth, O. (see page 69).
SHUMAN, A., & Co., Boston, Mass.
SMITH, Gray & Co., N. Y. City.
SMITH, Crary & Davidge, 174 Water St., Binghamton, N. Y.
SPEAR-Martin Fur Co., Burlington, Vt.
SPRAGUE, F. H. Co., Orange, Mass.
TUCKER, J. A., 111 Summer St., Boston, Mass.
WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.
WESTERN Robe Co., Detroit, Mich.

CLUTCHES (Speed Changing—See Gears)

CLUTCHES

BLEVNEY, John C., 216 High St., Newark, N. J.
CARLYLE & Johnson Machine Co., Hartford, Conn.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
GARFORD Co. (The), Elyria, O. (see page 7).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
MUNCIE Auto Parts Co., Muncie, Ind.
NATIONAL Brake & Clutch Co., 16 State St., Boston, Mass.
SMITH Co., A. O., Milwaukee, Wis.
SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page 29).
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
UNIVERSAL Clutch Co., 226 S. 11th St., Philadelphia, Pa.

COLUMNS (See Water Alarms & Columns)

COMMUTATORS (See Controllers, Electric)

COMPRESSORS (Air)

CHICAGO Pneumatic Tool Co., 1010 Fisher Bldg., Chicago, Ill.
CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.
CROWELL, Gilmer, 292-296 Graham St., Brooklyn, N. Y.
HASTINGS & Anderson, Chicago, Ill.
HUMPHREYS Mfg. Co., Mansfield, Ohio.
MARTIN & Anson Co., 2232 Cottage Grove Ave., Chicago, Ill.
NEW Era Gas Engine Co., 9 Dale Ave., Dayton, O.
PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 41).
WESTINGHOUSE Air Brake Co., Pittsburg, Pa.

CONDENSERS

A-Z Co. (The), 462 11th Ave., N. Y. City.
CHICAGO Auto. Mfg. Co., 4230 State St., Chicago, Ill.
NATIONAL Oil Burner & Equipment Co., Holland Bldg., St. Louis, Mo.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.
WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 77).

CONNECTING RODS

ANDERSON Forge & Machine Co., Detroit, Mich.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
GILL & Sons Forge & Machine Works, P. H., Brooklyn, N. Y.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 41).
STANDARD Connecting Rod Co., Beaver Falls, Pa.

CONNECTORS, Wire (See Wire Terminals)

CONTROLLERS (Electric)

ELECTRIC Vehicle Equipment Co., 20th St. & Montgomery Ave., Philadelphia, Pa.
ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.
GENERAL Electric Co., Schenectady, N. Y.
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
LAMB & Co., Kent and Lyon Sts., Grand Rapids, Mich.
LINCOLN Electric Co., Cleveland, O.
WESTINGHOUSE Elec. and Mfg. Co., Pittsburg, Pa.

COOLERS (See Radiators)

COUPLINGS (Brass)
(See Also Fittings—Pipe)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
PENINSULAR Milled Screw Co., Detroit, Mich.

COUPLINGS (Hose)

MORGAN, B., Newport, R. I.
PITTSBURG Hose Connector Co., Pittsburg, Pa.

COVERS (Auto)

BURGIN Bros., Springfield, Mass.
GILBERT Mfg. Co., New Haven, Conn. (see page 93).
LANDERS Bros. Co., 445 10th St., Toledo, O. (see page 97).

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"The Autoist's Friend"

Dealers

We guarantee that common stove gasoline treated with No-Ko-Rode will be just as efficient as 80° Be. gasoline, if carbureters are properly adjusted.

You can add much to your prestige and your pocketbook handling:

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READ THIS

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is a chemical preparation with such wonderful properties that it has uses wherever gasoline, naphtha or kerosene is used for the development of power, light or heat.

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Garage: 1230 Wabash Ave.
HIGH-CLASS OPERA AND TOURIST CARS FOR RENT

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THE NO-KO-RODE COMPANY, Chicago, Illinois.
Gentlemen:
I am pleased to state after using this Compound for over five months that I find it just as effective to-day as when I first began using it. After the length of time I have been using this Compound I am thoroughly convinced there is no question as to the durability and other claims made for the Compound.
Before I began using this Compound I was continually troubled with the corroding of the spark plugs in all of my machines; I am pleased to say that since beginning its use I have never been compelled to clean any of the spark plugs on account of corroding. I also find my machines run much steadier and a great decrease in the odor of the exploded gasoline.
I am also satisfied that there is a saving in using the treated gasoline, as it goes much farther than the untreated.
I heartily recommend this Compound to all chauffeurs and owners of automobiles.
Very truly yours, J. J. STRAIGHT.

WHAT NO-KO-RODE DOES.

Prevents the corrosion of spark plugs and cylinders in automobiles or stationary engines, steadies the machine, increases the power, saves wear and tear on engine, greatly decreases odor of the exploded gasoline, and saves 15 to 20 per cent. in cost of operating machine, as you can use a much lower grade of gasoline when treated with No-Ko-Rode.

Prevents the needles in lamps, stoves or lighting and heating apparatus from clogging and does away with the smoke and odor.

Used in kerosene it does away with the smoke and odor in lamps and stoves, and should be of special interest to all operators of incubators, as the soot and odor from kerosene has stood in the way of many a successful hatch and has been a great cause of mortality in the chicks.

No-Ko-Rode is put up in tubes to treat fifty gallons of oil and is composed of two different kinds, one for the treatment of gasoline and naphtha and the other for kerosene. This compound will be mailed to any address in the United States, upon receipt of price, $.50 per tube. Special rates to dealers.

Address, No-Ko-Rode, Suite 826, 225 Dearborn Street, Chicago.

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WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

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ANDERSON Forge & Machine Co., Detroit, Mich.
BILLINGS & Spencer Co., Hartford, Conn.
BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.
GILL & Sons, P. H., Forge & Mach. Wks., Brooklyn, N. Y.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
LELAND, W. H., & Co., 6 Sheridan St., Worcester, Mass.
STANDARD Connecting Rod Co., Beaver Falls, Pa.
STANDARD Welding Co., Cleveland, O.
TINDEL-MORRIS Co., Eddystone, Pa.
WYMAN & Gordon, 30 Bradley St., Worcester, Mass.

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DIXON, Jos., Crucible Co., Jersey City, N. J.
OBERMAYER Co., S., (The), 641 Evans St., Cincinnati, O.
WISCONSIN Graphite Co., Allegheny, Pa.

CUPS (Ball)

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NATIONAL Cycle Mfg. Co., Bay City, Mich. Mass.
WORCESTER Pressed Steel Co., Worcester, Mass.

CUPS AND CONES

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CORBIN, P. & F., New Britain, Conn.
DETROIT Screw Works, Detroit, Mich.
HARRIS, E. T., 513-515 15th St., Chicago, Ill.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
HOUGHTON & Buxton, Worcester, Mass.
MATHEWS, H. A., Mfg. Co., Seymour, Conn.
NEW Britain Hardware Mfg. Co. (The), New Britain, Conn.
PENINSULAR Milled Screw Co., Detroit, Mich.
WESTERN Automatic Machine Screw Co. (The), Elyria, O.

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ENEAS, A. G., 50 Congress St., Boston, Mass.
IDEAL Storm Curtain Co., McPherson, Kas.
SPRAGUE Umbrella Co. (The), Norwolk, O.

CURTAIN FASTENERS

SMITH & Co., Jos. N., Detroit, Mich.
NEIDER Co., F. A. (The), Augusta, Ky. (see page 97).
ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.
WING Co., Charles, Amesbury, Mass.

CUSHIO S

DETROIT Carriage Co., Detroit, Mich.
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
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INITIAL Toe Pad Co., Three Rivers, Mich.
KELLEY, E., & Co., 509 Main St., Worcester, Mass.
LARRIMORE Buggy Top Co., Baltimore, Md.
MECHANICAL Fabric Co., Providence, R. I.
NEWTON, W. H. & Son, 127 Elm St., Cortland, N. Y.
PELINKA, Frank, 409 Blue Island Ave., Chicago, Ill.
PNEUMATIC Mattress & Cushion Co., 5 Fourth St., N. Y. City.
SPRINGFIELD Auto. Top & Upholstering Co., Springfield, Mass.
VENTILATED Cushion Co., 164 Randolph St., Chicago, Ill.

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DASHES AND FENDERS

A-Z Co. (The), 462 11th Ave., N. Y. City.
AMERICAN Veneer Co., Kenilworth, N. J.
BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BENNETT Mfg. Co., Hunt, N. Y.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
COLE & Woop, New York City.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
DANN Bros. Co., New Haven, Conn
DETROIT Auto Specialty Co., 909-911 Greenwood Ave., Detroit, Mich. (see page 89).
DETROIT Auto. Top Co., Detroit, Mich.
DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.
EVERITT, B. F., 65 E. Fort St., Detroit, Mich.
FEDDERS Mfg. Co., Buffalo, N. Y.
HALL, E. H., Co. (The), Inc., 12 Elm St., Rochester, N. Y.
HAYES Mfg. Co. (The), 773 Bellevue Ave., Detroit, Mich.
INDIANAPOLIS Dash Co., Indianapolis, Ind.
INITIAL Toe Pad Co., Three Rivers, Mich.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 29).
KINSEY Mfg. Co., Dayton, O. (see back cover).
LOCKE & Co., 218-220 West 84th St., New York.
MAYO Radiator Co. (The), New Haven, Conn. (see page 79).
M'KINNON Dash Co., Buffalo, N. Y.
MOORE & Munger Co., 602 W. 52d St., New York.
NEW York Dash & Fender Co., 516-520 W. 36th St., N. Y. City.
PETERS & Herron Dash Co. (The), Columbus, O.

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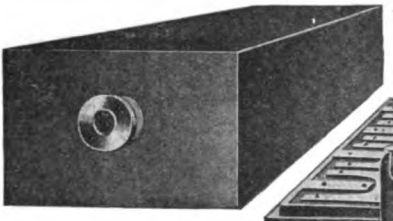

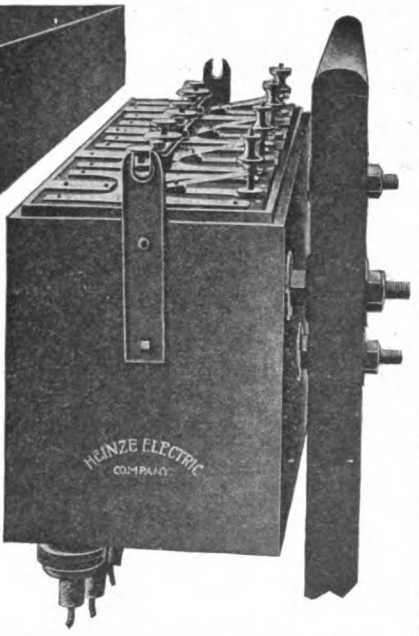

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Our coil gives a fat spark of great frequency, never skips. Do not settle on any coil until you have tried ours.

Our prices are reasonable.

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ANDERSON Forge & Machine Co., Detroit, Mich.
BAKER, Jas. H., Mfg. Co., 503 Park Bldg., Pittsburg, Pa.
BATES Forge Co., Indianapolis, Ind.
BELDEN Machine Co., New Haven, Conn.
BETHLEHEM Steel Co., So. Bethlehem, Pa.
BILLINGS & Spencer Co., Hartford, Conn.
BLAKESLEE Forging Co., Plantsville, Conn.
BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.
BROOKEBANK, Mullin & Co., 409 Commerce St., Philadelphia, Pa.
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CAPE Ann Tool Co., Pigeon Cove, Mass.
CHICAGO Drop Forge Co., Kensington, Ill.
CHICAGO Drop Forge & Foundry Co., West Pullman, Ill.
CLAPP, E. D., Mfg. Co. (The), Auburn, N. Y.
CONSOLIDATED Mfg. Co., Toledo, O.
CORLISS Engine Works, Providence, R. I.
CORTLAND Forging Co., Cortland, N. Y.
DYSON, Jos. & Sons, Hamilton & Kirtland Sts., Cleveland, O.
EASTERN Forge Co., 70 Kilby St., Boston, Mass.
ECCLES, Richard, Auburn, N. Y.
ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.
FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.
GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
INDIANAPOLIS Drop Forging Co., Madison Ave. and Downey St., Indianapolis, Ind.
KEYSTONE Drop Forge Co., Chester, Pa.
KILBORN & Bishop Co. (The), New Haven Conn.
KINGSTON Truck & Bolt Co., Kingston, N. Y.
MICHIGAN Bolt & Nut Wks., Detroit, Mich.
MOORE Drop Forging Co., Springfield, Mass.
PAIGE-Storms Drop Forge Co., Chicopee Falls, Mass.
REESE Machine & Tool Wks., Plymouth, Pa.
REVERE Drop Forge Co., Revere, Mass.
RYMAN Co., K. L., 164 Market St., Newark, N. J.
SCRANTON Forging Co., Scranton, Pa.
SEWARD & Son Co., M., New Haven, Conn.
SMITH Co., A. O., Milwaukee, Wis.
SMITH, H. D., & Co., Plantsville, Conn.
SPRINGFIELD Drop Forging Co., Springfield, Mass.
STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.
TRASNUE & Williams Co. (The), Alliance, Ohio.
UNION Drop Forge Co., 64-76 E. Ohio St., Chicago, Ill.
WHITMAN & Barnes Mfg. Co., Akron, O.
WILCOX, D., Mfg. Co., Mechanicsburg, Pa.
WILLIAMS, J. H., & Co., Brooklyn, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass. (cold).
WYMAN & Gordon 30 Bradley St., Worcester, Mass.

DUST RINGS (See Felt Washers)

DUST SHIELDS

BROWN, W. H., Lennox Bldg., Cleveland, O.
GODDARD & Allen, Rockford, Ill.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.
WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

DYNAMOS (See Generators)

EJECTORS

LOCKE Regulator Co., Salem, Mass.
PENBERTHY Ejector Co., Detroit, Mich.
RUE Mfg. Co., 215 Race St., Philadelphia, Pa.
SHERWOOD Mfg. Co., Buffalo, N. Y.

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STORM Mfg. Co., The, foot of Centre St., Newark, N. J.

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AMERICAN Enamel Co., Providence, R. I.
ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
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It enables you to see at all times. A necessity to tourists. No wiring necessary. No smoke, no smell, no smut, no matches, no danger, no grease.

A Bright Light, A Safe Light,
A Modern Light, and An
Absolutely Reliable Time-piece.

Can be permanently attached or removable to any part of machine.

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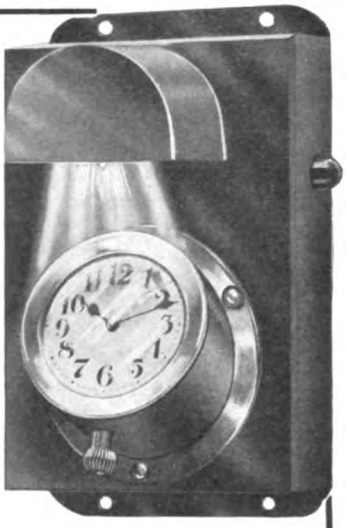
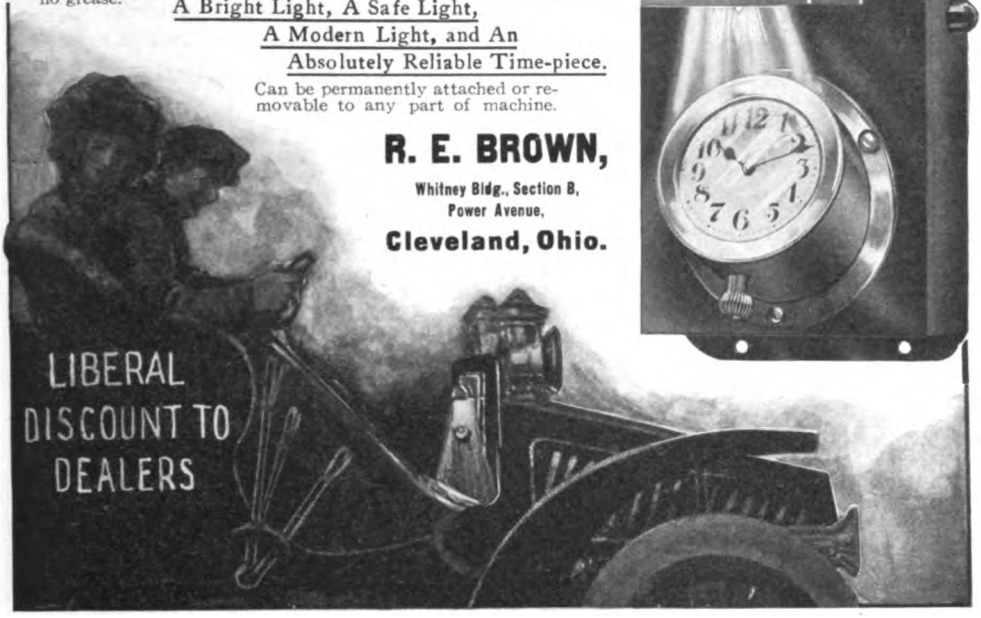
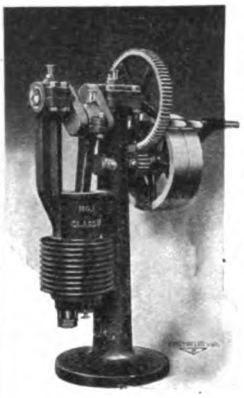




AIR COMPRESSORS



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SHERWIN-Williams Co., 100 Canal St., Cleveland, O.
STANDARD Varnish Co., 29 B'way, N. Y. City.
VALENTINE & Co., 257 Broadway, N. Y. City.
WATTS-De Golyer Co. (The), 377-391 Illinois St., Chicago, Ill.

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FOX Valveless Steam Engine Co., Rochester, N. Y.
HILL Engine Co., Kenosha, Wis.
KILBURN, Edwin, Spring Valley, Minn.
LAKEPORT Mfg. Co., Lakeport, N. H.
MASON Regulator Co., 158 Summer St., Boston, Mass.
MILNE, Frank, Crescent St., Everett, Mass.
NADIG, C. H., & Bro., Mfg. Co., 16-24 No. 4th St., Allentown, Pa.
RACINE Engine & Iron Wks. Racine, Wis.
RANDALL, G. N., 1094 French St., Meadville, Pa.
ROCHESTER Machine Tool Wks., Ltd., Rochester, N. Y.
SANTA Ana Machine & Foundry Co., Santa Ana, Cal.
SMITH, Wm. J., New Haven, Conn.
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CHICAGO Eye Shield Co., 112 Randolph St., Chicago, Ill.
ERHLICH & Son, J., 1345 Broadway, N. Y. City.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
GLOBE Optical Co., Boston, Mass.
LLOYD, A. J., & Co., 323 Washington St., Boston, Mass.
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OELSCHLAGER Bros., 42 E. 23d St., N. Y. City.
OPHTHALMUSCOPE Co., 3322 Monroe St., Toledo, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
SCHEIDIG & Co., Maiden Lane, N. Y. City.
SPENCER Optical Mfg. Co., 15 Maiden Lane, N. Y. City.
SUSSFIELD, Lorsch & Co., 37 Maiden Lane, N. Y. City.
TEXAS Co. (The), Chicago, Ill.

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CHILDS Co., O. J., Utica, N. Y.
HARRIS Safety Co., N. Y. City.
HAVERHILL Fire Appliance Co., Haverhill, Mass.
HOWE, G. S. & A. J., Co., 117 Exchange St., Worcester, Mass.
JOHNS-Manville Co., H. W., 100 William St., N. Y. City.
LITTLE Giant Mfg. Co., 88 Wall St., N. Y. City.
MONARCH Fire Appliance Co. 249 Pearl St., New York City.
NEVERMISS Fire Extinguisher Co., Middletown, N. Y.
PHOENIX Appliance Co., 15 W. 28th St., N. Y. City.
STEMPEL Fire Apparatus Mfg. Co., 4520 N. 20th St., St. Louis, Mo.
SUFFOLK Chemical Co., 36 Portland St., Boston, Mass. (see page opposite).

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BELFIELD & Co., H., Philadelphia, Pa.
BELKNAP Mfg. Co., Bridgeport, Conn.
BEST Manufacturing Co., Pittsburg, Pa.
BUCKEYE Iron & Brass Works, Dayton, O.
CENTRAL Brass Works, Cincinnati, Ohio.
CHAMBERS & Ainslee, Newark, N. J.
CRANE Co., Chicago, Ill.
DALTON-INGERSOLL Co., Boston, Mass.
DARLING Pump & Mfg. Co., Williamsport, Pa.
DETROIT Lubricator Co., Detroit, Mich.
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EASTWOOD Wire Mfg. Co., Belleville, N. J.
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IDEAL Manufacturing Co., Detroit, Mich.
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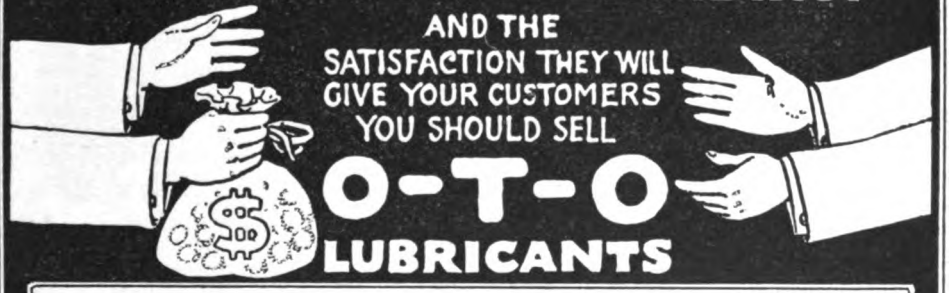

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BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FROST Mfg. Co., Kenosha, Wis.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
TALIAFERRO, W. T., 258 Broadway, N. Y. City.

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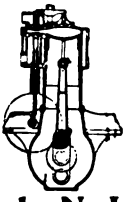

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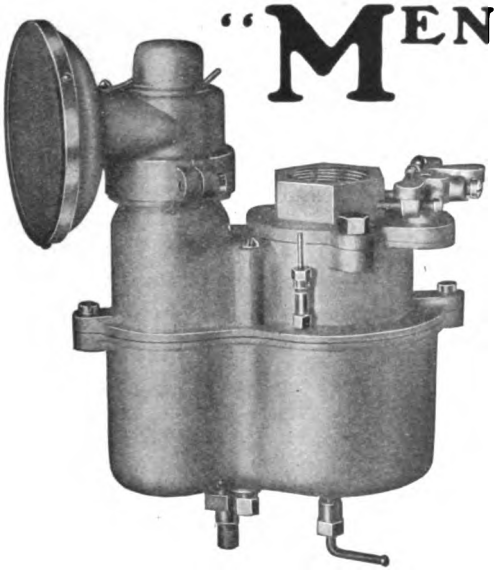

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F—Spraying nozzle
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H—Throttle
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J—Float
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M—Drain cock
N—Motor connection
O—Gasoline inlet
P—Opening between the two chambers

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CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
GARFORD Co. (The), Elyria, O. (see page 7).
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LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 21).
PIONEER Brass Wks., Indianapolis, Ind.
SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 33).
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BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.
CULLMAN Wheel Co., 1024 Dunning St., Chicago, Ill. (see page 87).
FORG, Peter, 50 Park St., Somerville, Mass.
GARFORD Co. (The), Elyria, O. (see page 7).
GRANT Gear Wks., 6 Portland St., Boston, Mass.
GRAY Hawley Mfg. Co., 605-609 Fort St. W., Detroit, Mich.
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GEARLESS Transmission Co., Rochester, N. Y. (see page opposite).
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TUTTLE Mfg. Co., H. A., So. Norwalk, Conn.
WARNER Gear Co., Muncie, Ind.

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HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
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LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.
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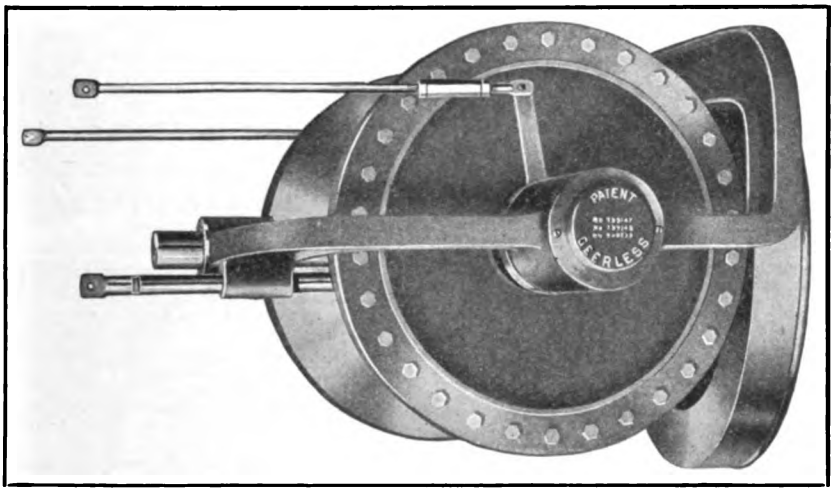

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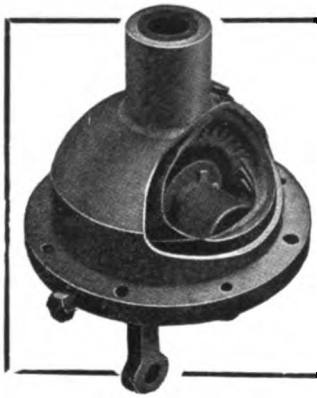

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CLARK Glove Co., Peabody, Mass. (see page opposite).
CROSBY, Frisian, Fur Co., 116 Mill St., Rochester, N. Y.
DEMMERLE & Co., 248 W. 23d St., N. Y. City.
DETROIT Leather Specialty Co., Detroit, Mich.
EISENDRATH Glove Co., Armitage and Elston Ave., Chicago, Ill.
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EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
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KIBBE, C. S., Batavia N. Y.
LILLEY, M. C., & Co., Columbus, O.
MESINGER, H. & F. Mfg. Co., 1801-1803 First Ave., N. Y. City.
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POPE Mfg. Co., Hartford, Conn. (see page 53).
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POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
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EAGLE Oil and Supply Co., 104 Broad St., Boston, Mass.

ENERGINE Co. (The), 833 Cuyahoga Bldg., Cleveland, O. (see page 11).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.

KELLOGG, E. H. Co., 243-244 South St., New York City.

KEYSTONE Lubricating Co., 20th and Allegheny Ave., Philadelphia, Pa.

MILLER'S Sons, Wm. P., 100 Greenpoint Ave., Brooklyn, N. Y.

NATIONAL Cement and Rubber Mfg. Co., Toledo, O.

N. Y. and N. J. Lubricant Co., 14 Church St., New York City (see page 49).

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).

RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.

WISCONSIN Graphite Co., Allegheny, Pa.

GREASE CUPS

AMERICAN Injector Co., Detroit, Mich.

AMERICAN Lubricator Co., Detroit, Mich.

BOWEN Mfg. Co., Auburn, N. Y.

DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.

ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).

LUNKENHEIMER Co. (The), Cincinnati, O.

TUCKER, W. W. & C. F., Hartford, Conn.

WILLIAM Powell Co. (The), 2525-31 Spring Grove Ave., Cincinnati, O.

WINKLEY Co. (The), Detroit, Mich.

GRIPS

AMERICAN Enamel Co., Providence, R. I.

ARMSTRONG Cork Co., 23d St. & A. V. Ry., Pittsburg, Pa.

DETROIT Leather Goods Mfg. Co., Beecher & Michigan Aves., Detroit, Mich.

GOODRICH Co., B. F., Akron, Ohio.

GRAND Rapids Bicycle Grip Co., 36 Mill St., Grand Rapids, Mich.

HART Mfg. Co., 370 Atlantic Ave., Boston, Mass.

MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.

PETERLEIN, C. E., 116 Prescott St., Grand Rapids, Mich.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).

RASTETTER & Son, Louis, Ft. Wayne, Ind.

SMITH Bros., 12-20 Essex St., Melrose, Mass.

VENTILATED Grip Mfg. Co., 123 Walnut St., Newark, N. J.

WOLVERINE Leather Specialty Co., Fort and 4th Sts., Detroit, Mich.

WOODWORTH Bros., Newton Highlands, Mass.

HAIR (Curled)

ARMOUR Curled Hair Wks., Chicago, Ill.

BAEDER, Adamson & Co., 67 Beekman St., N. Y. City.

MITCHELL, P. R., Co. (The), Spring Grove & Harrison Aves., Cincinnati, O.

HAMPERS

AMER. Basket Factory, 480 S. Center Ave., Chicago, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

BAILIE Basket Co., 85 Hudson St., Boston, Mass.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).

BOSTON Mat & Basket Co., 62 Fulton St., Boston, Mass.

BURLINGTON Basket Co., Burlington, Ia.

BUXTON, B. W., 7 Taylor St., Springfield, Mass.

CHICAGO Willow & Rattan Works, 424-26 Blue Island Ave., Chicago, Ill.

CURADO Willow Ware Co., 1524 Frankford Ave., Philadelphia, Pa.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).

FONTAINE, R. A., 342 Gratiot Ave., Detroit, Mich.

HEYWOOD Bros. & Wakefield Co., 174 Portland St., Boston, Mass.

KINSEY Mfg. Co., Dayton, O. (see back cover).

KEYSTONE Willow Mfg. Co., 700 Green St., Philadelphia, Pa.

MESSMER, A. L. H., 810 South Meridian St., Indianapolis, Ind.

MILLER, Chas. E., 97 Reade St., New York. (Dealer and Jobber.)

MYERS & Alexander, 239 E. 27th St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).

POUGHKEEPSIE Art Pulp Co., 110 Mill St., Poughkeepsie, N. Y.

RATTAN Mfg. Co., 522 State St., New Haven, Conn.

SCHERER, Williams Co., 30 Lewis Wharf, Boston, Mass.

UNION Carriage & Rattan Co., Ohio Falls, Ind.

HANDLE BARS

ACME Cycle Co., 322 Main St., Elkhart, Ind.

CURTIS Mfg. Co., G. H., Hammondsport, N. Y.

GARFORD Co. (The), Elyria, O. (see page 7).

IDEAL Plating Co., 3 Appleton St., Boston, Mass.

KELLY Handle Bar Co., Cleveland, O.

MILWAUKEE Automatic Machine Co., Milwaukee and Michigan Sts., Milwaukee, Wis.

NEFF Handle Bar Co., Webster City, Iowa.

RASTETTER & Son, Louis, Ft. Wayne, Ind.

REESE Machine Tool Works, 224 Main St., Plymouth, Pa.

GUARDS (See Dashes and Fenders)

HANDLES (See Grips)

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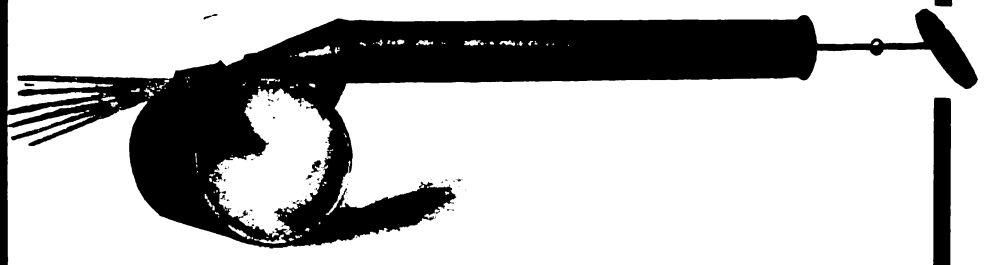

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HEATERS (Carriage)

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CHICAGO Flexible Shaft Co., La Salle Ave. and Ontario St., Chicago, Ill.
FAIREST Wheel Co., Pana, Ill.
LEHMAN Bros., 10 Bond St., N. Y. City.
NOVELTY Mfg. Co., Jackson, Mich.
OLMSTED & Co., Syracuse, N. Y.
PROGRESSIVE Mfg. Co., Pana, Ill.
STANDARD Stamping Co., Marysville, O.

HEATERS (Feed Water)

KILBURN, Edwin, Spring Valley, Minn.
NATIONAL Pipe Bending Co., New Haven, Conn.
NORRIS Mfg. Co., 27 Western Ave., Cambridge, Mass.
RANLET Automobile Co., St. Johnsbury, Vt.
WHITLOCK Coil Pipe Co., Hartford, Conn. (see page 47).

HEATERS (Torch)

FOSTER & Brown, Westbrook, Me.
MORAN Flexible Steam Joint Co., Louisville, Ky.
TURNER Brass Wks., Michigan and Franklin Sts., Chicago, Ill.
WALLACE, W. M., 616 18th St., N. W., Washington, D. C.

HOLDERS (Watch)

COWLES & Co., C., New Haven, Conn.
ENGLISH & Mersick Co., New Haven, Conn.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
RUMPP & Sons, C. F., Philadelphia, Pa.

HOODS

A-Z Co. (The), 462 11th Ave., N. Y. City.
BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
DETROIT Auto Specialty Co., 909-911 Greenwood Ave., Detroit, Mich. (see page 89).
DIAMOND Stamped Ware Co., Detroit, Mich.
DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.
FEDDERS Mfg. Co., Buffalo, N. Y.
HAYES Mfg. Co. (The), 773 Bellevue Ave., Detroit, Mich.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 39).
KINSEY Mfg. Co., Dayton, O. (see back cover).
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
MAYO Radiator Co. (The), New Haven, Conn. (see page 79).
MOORE & Munger Co., 602 W. 52d St., New York.
SPRINGFIELD Metal Body Co., Springfield, Mass.
WRIGHT Cooler & Hood Mfg. Co., 385 Wabash Ave., Chicago, Ill.

HORNS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
CENTRAL Garage Co., 330 E. Market St., Indianapolis, Ind.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FUNKE, A. H., 83 Chambers St., New York.
GABRIEL Horn Mfg. Co., 970 Hamilton St., Cleveland, O.
GAS Engine Whistle Co., 1123 Broadway, N. Y. City.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
GRAY Hawley Mfg. Co., 605-609 Fort St. W., Detroit, Mich.
HUTCHINSON Electric Horn Co., N. Y. City.
KING Dodo Horn Co., Piqua, O.
MILLER, Charles E., 97-101 Reade St., New York (Dealer and Jobber).
O'BRIEN Electrophone Co., Augusta, Me.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see opposite page).
RILEY-Klotz Mfg. Co., Newark, N. J.
RUBAY, Leon, 136 W. 38th St., N. Y. City (Importers).
20TH Century Mfg. Co., 19 Warren St., New York.
UNCAS Specialty Co., Norwich, Conn.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.

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MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City.
W. S. TYLER Co., 1158 Pt. Clair St., Cleveland, O.

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BURNHAM-Standeford Co., Oakland, Cal.
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HOLLIS, Park & Pollard, 28-30 Canal St., Boston, Mass.
KEASBY & Mattison Co., Ambler, Pa.
LLOYD Iron Roofing & Paint Co., 99 W. Monroe St., Chicago, Ill.
MANLEY, Chas. H., St. Johns, Mich.
MERSHON & Morley, Saginaw, Mich.
SMITH, H. W., 66 B'way, N. Y. City.
SPRINGFIELD Moulding Works, 54 Waltham Ave., Springfield, Mass.

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CURTIS Mfg. Co., G. H., Hammondsport, N. Y.
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HARRIS, E. T., 531 W. 15th St., Chicago, Ill.
HESS-Bright Mfg. Co., 619 Penna. Bldg., Philadelphia, Pa.
I. C. A. Hub Co., Keene, N. H.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
LASHAWAY Car & Wheel Co., East Brookfield, Mass.
MUNCIE Auto Parts Co., Muncie, Ind.
NEW Britain Hdwe. Mfg. Co. (The), New Britain, Conn.
NOVELTY Machine Works, 77 E. North St., Buffalo, N. Y.
REESE Machine & Tool Works, 224 Main St., Plymouth, Pa.
SCHMITZ, Frank & Sons, 560 Orleans St., Chicago, Ill.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Roller Bearing Co., 48th & Girard Ave., Philadelphia, Pa.
STANDARD Welding Co., Cleveland, O.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
WESTON-Mott Co., Utica, N. Y. (see page 17).
WRIGHT Taper Roller Bearing Co., Mutual Life Bldg., Buffalo, N. Y.

HUB CAPS

CROSBY Co. (The), Buffalo, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass.

HUB FLANGES

CROSBY Co. (The), Buffalo, N. Y.
WORCESTER Pressed Steel Co., Worcester, Mass.

HYDROMETERS

ADAMS, A. L., 45 Salem St., Worcester, Mass.
AMERICAN Thermo-ware Co., 16 Warren St., New York.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
GREINER, Emil, 78 John St., New York, N. Y.
MILLER, Chas. E., 97 Reade St., N. Y. City (Dealer and Jobber).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
SCIENTIFIC Shop (The), 1230 Monon Bldg., Chicago, Ill.
STORAGE Battery Supply Co., 239 E. 27th St., N. Y. City.
TAYLOR Bros. Co., Rochester, N. Y.
VUILLE, Chas. A., Huntingdon, Pa.

IGNITING DEVICES

ALTEMUS & Co., C. L., 15th and Market Sts., Philadelphia, Pa.
AMERICAN Coil Co., Foxboro, Mass.
CARLISLE & Finch Co. (The), 223 E. Clinton Ave., Cincinnati, O.
CLIMAX Igniter Co., Amesbury, Mass.
DAYTON Electrical Mfg. Co., Dayton, O.
ELBRIDGE Electrical Mfg. Co., Elbridge, N. Y.
GILBOUGH, B. G., 36 La Salle St., Chicago, Ill.
HERCULES Elec. and Mfg. Co., 30-34 West South St., Indianapolis, Ind.
HERZ & Co., Cor. Elm and Marion Sts., N. Y. City.
HOLTZER-Cabot Electric Co., Brookline, Mass.
KENDRICK & Davis, Lebanon, N. H.
KENT Mfg. Works, Atwater, 50 N. Sixth St., Philadelphia, Pa. (see page 15).
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
MOTSINGER Device Mfg. Co., Pendleton, Ind.
PERFECTION Magneto Co., Anderson, Ind.
POLY-Phase Ignition System Co., 52 Broadway, N. Y. City.
REMY Electric Co., Anderson, Ind.
THURSTON Mfg. Co. (The), 356 E. 57th St., Chicago, Ill.
TRITT Electrical Mfg. Co., 114 W. Division St., South Bend, Ind.

INDICATORS (Gaso. Tank) (See Gauges Gaso. Tank)

INDICATORS (Speed and Distance)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BELL Odometer Wks., Oakmont, Pa.
BROOKS Odometer Co., 17 Nicolet St., Lowell, Mass.
BULLARD, J. H., Highland Station, Springfield, Mass.
CHICAGO Pneumatic Tool Co., Fisher Bldg., Chicago, Ill.
DAVIS, S. H., & Co., 68-70 Portland St., Boston, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
HICKS Speed Indicator Co., 1384 Bedford Ave., Brooklyn, N. Y.
HOFFECKER Speed & Mile Register Co., Park Sq. Motor Mart, Boston, Mass.
JONES, J. W., 127 W. 32d St., N. Y. City.
LORING, E. J., Somerville, Mass.
McGIEHAN Odometer & Mfg. Co., 127 W. 32d St., N. Y. City.
MONITOR Speed Recorder Co., 274 Pearl St., Cambridge, Mass.
MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
SIBLEY & Pitman, 26 Warren St., N. Y. City.
SMITH Manufacturing Co., R. H., Springfield, Mass. (see page opposite).
SPEED Indicator Co. (The), 415 N. W. Bldg., Minneapolis, Minn.
Veeder Mfg. Co., Hartford, Conn.
WARNER Instrument Co., 52 Roosevelt Ave., Beloit, Wis. (see page 17).
WEBB Co. (The), 1679 Broadway, N. Y. City.
WOOD Speedometer Co., 106 Sudbury St., Boston, Mass.

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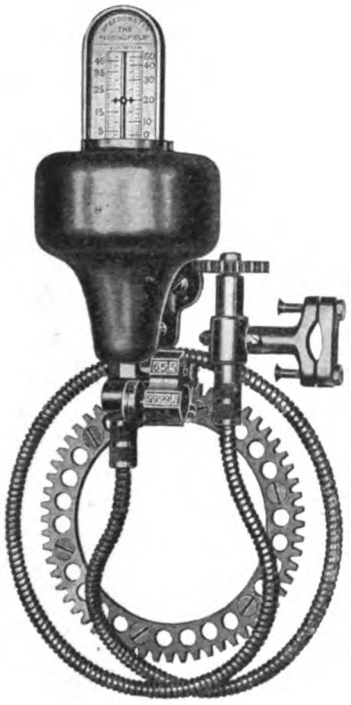

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PENNSYLVANIA Steel Co., Steelton, Pa.
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AM. Iron & Steel Mfg. Co., Lebanon, Pa.
AMERICAN Steel Hoop Co., Pittsburg, Pa.
BRAEBURN Steel Co., Braeburn, Pa.
CAMBRIA Steel Co., Philadelphia, Pa.
CARNEGIE Steel Co., Pittsburg, Pa.
CRUCIBLE Steel Co. of Am., Pittsburg, Pa.
DIAMOND State Steel Co., Wilmington, Del.
LOCKHART Iron & Steel Co., McKee's Rocks, Pa.
LOGAN Iron & Steel Co., Burnham, Pa.
NATIONAL Steel Co., Pittsburg, Pa.
PASSAIC Steel Co., Paterson, N. J.
PENNSYLVANIA Steel Co., Steelton, Pa.
PHOENIX Iron Co., Phoenixville, Pa.
PITTSBURG Steel Shafting Co., Braddock, Pa.
REPUBLIC Iron & Steel Co., Chicago, Ill.

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AMERICAN Sheet Iron Co., Phillipsburg, N. J.
AMERICAN Sheet Steel Co., New York, N. Y.
BASSETT-Pressley Co., Cleveland, O.
CANONSBURG Iron & Steel Co., Pittsburg, Pa.
McCULLOUGH Iron Co., Wilmington, Del.
MARYLAND Sheet & Steel Co., Cumberland, Md.
TAYLOR Co., N. & G., Philadelphia, Pa.
WAITE, Ranlet & Co., 80-82 Broad St., Boston, Mass.
WAUKESHA Sheet Steel Co., Waukesha, Wis.
YOUNGSTOWN Iron, Sheet & Tube Co., Youngstown, Ohio.

JACKS

ANDERSON Forge & Machine Co., Detroit, Mich.
ANDERSON Pole & Shaft Co., Anderson, Ind.
AUTOBED Co. (The), Boston, Mass. (Automatic Lift).
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTO. Supply Co., Binghamton, N. Y.
BARTH Mfg. Co., Milwaukee, Wis.
BATAVIA Clamp Co., Batavia, N. Y.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BICYCLE Step Ladder Co. (The), 63 Randolph St., Chicago, Ill.
BUCKEYE Jack Mfg. Co., Louisville, O.
COOK'S Railway Appliance Co., Kalamazoo, Mich.
COVERT Mfg. Co., West Troy, N. Y.
DUFF Mfg. Co., Pittsburg, Pa.
EUREKA Mower Co., Utica, N. Y.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
GARLICK Auto. Prop. Co., Madison Ave. and Broadway, Paterson, N. J.
GLOBE Jack Co., Philadelphia, Pa.
JERSEY Brake Co., 93 Green St., Newark, N. J.
LOCKHART, W. J., 28 Beach St., Boston, Mass.
MAXWELL, L. R. & Co., Cedar Rapids, Ia.
MIAMI Pattern Wks., Dayton, O.
OLIVER Mfg. Co., 213 So. Desplaines St., Chicago, Ill.
PEARSALL Mfg. Co., 345-347 W. Fayette St., Syracuse, N. Y.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
ROTH Jack and Tool Co., 68 William St., New York.
SHAW Engineering & Mfg. Co., Newark, N. J.
SHAWVER Co., Springfield, O.
SMITH & Heminway, 296 Broadway, N. Y. City.
TRENTON Malleable Iron Co., Trenton, N. J.
UNIVERSAL Jack & Power Co., Flatiron Bldg., New York, N. Y.
WHIPPLE, R. W., 169 State St., Binghamton, N. Y.

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BLOOD Bros. Auto. & Mach. Co., Kalamazoo, Mich.
CALDWELL-Wilcox Co., Newbury, N. Y.
COATES Clipper Mfg. Co., Worcester, Mass
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
LAIB Co., Louisville, Ky.
LEHMAN, I., 61 Middle St., Cleveland, O.
MORAN Flexible Joint Co., 149 3d St., Louisville, Ky.
MUTUAL Machine Co., Hartford, Conn.
SPICER Universal Joint Mfg. Co., Plainfield, N. J.
VANDERBEEK Tool Wks., Hartford, Conn.

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AUTO Brass & Aluminum Co., Beach and Mill Sts., Flint, Mich.
BEVIN Bros. Mfg. Co., East Hampton, Conn.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DAKIN, B. E., 219 Bond Bldg., Washington, D. C.
DOUGLAS & Lomason Co., Detroit, Mich. (see page 97).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
KELLY Handle Bar Co., Cleveland, O.
MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 93).

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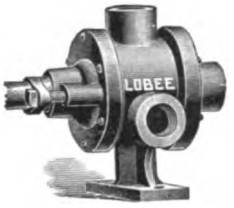
The Lobee Circulating Pumps



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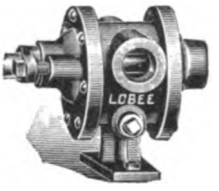

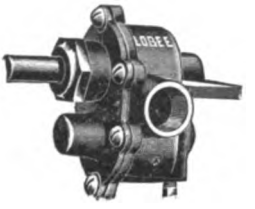

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SMITH & Co., Jos., Fourth and Porter Sts., Detroit, Mich.
STANDARD Welding Co., Cleveland, O.

LAMP BRACKETS (Automatic)

IMPERIAL Brass Mfg. Co., 231 So. Jefferson Ave., Chicago, Ill. (see page 73).

LAMP COVERS

EMPIRE Rubber Co., 115-117 Worth St., N. Y. City.
GILBERT Mfg. Co., 70-80 Center St., New Haven, Conn. (see page 93).
LONDON Auto Supply Co., 1229 Michigan Ave., Chicago, Ill. (see page 95).
WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

LAMPS

AMERICAN Lamp Co., 83 Randolph St., Detroit, Mich.
AMERICAN Lamp Wks., 62 West 43d St., N. Y. City.
ANGUILLI, Luigi, 182 Centre St., New York, N. Y.
APFEL-Murdoch & Co., 82 Lake St., Chicago, Ill.
ATWOOD Mfg. Co., Amesbury, Mass.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
A-Z Co., 462 11th Ave., N. Y. City.
BADGER Brass Mfg. Co., Kenosha, Wis.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BROWN Mfg. Co., Columbus, O.
CHICAGO Auto Lamp Works, 71 W. Jackson Blvd., Chicago, Ill.
CHICAGO Battery Co., Michigan Ave. & 14th St., Chicago, Ill.
COLT Co., J. B., 21 Barclay St., N. Y. City.
CORCORAN Lamp Co. (The), 1712 Reading Rd., Cincinnati, O. (see page opposite).
COWLES, C., & Co., New Haven, Conn.
DAYTON Mfg. Co., 2240 E. 3d St., Dayton, Ohio.
DIETZ, R. E., Co., 33 Laight St., N. Y. City.
DU BOIS Searchlight Co., 220 Broadway, N. Y. City.
EDMUNDS & Jones, 315 Riopelle St., Detroit, Mich.
ENGLISH & Mersick Lamp & Fdry. Co., New Haven, Conn.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FUNKE, A. H., 83 Chambers St., N. Y. City.
GRAY & Davis, Amesbury, Mass.
GRAY, Peter & Sons, 88-90 Union St., Boston, Mass.
HAM Mfg. Co., C. T., Rochester, N. Y.
HINE-Watt Mfg. Co., 58 Wabash Ave., Chicago, Ill.
LOCKWOOD, C. N., & Co., 57 Mechanic St., Newark, N. J.
MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.
MANHATTAN Lamp Works, 530 W. 28th St., N. Y. City (see page 106).
MILLER Mfg. Co., Peekskill, N. Y.
NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.
NATIONAL Elec. Supply Co., Washington, D. C.
NEWARK Coach Lamp Co., 84-96 Monroe St., Newark, N. J.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
PYLE Mfg. Co., 2211 Park Ave., Indianapolis, Ind.
RICHMOND, Ind., Mfg. Co., Richmond, Ind.
ROSE Mfg. Co., 910 Arch St., Phila., Pa.
RUBAY, Leon, 136 W. 38th St., N. Y. City.
RUSHMORE Dynamo Wks., Plainfield, N. J.
SCOVILLE & Peck Co. (The), New Haven, Conn.
STANDARD Carriage Lamp Co., 43-49 So. Canal St., Chicago, Ill.
STEVENS & Sackett Co. (The), 129-131 Union St., New Haven, Conn.
TWENTIETH Century Mfg. Co., 19 Warren St., New York, N. Y.
U. S. Headlight Co., Buffalo, N. Y.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WHITE Mfg. Co., Bridgeport, Conn.

LAMPS (Water Glass)

DIETZ, R. E., Co., 33 Laight St., N. Y. City.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.

LEATHER

AMERICAN Oak Leather Co., Cincinnati, O.
ASHTABULA Hide & Leather Co., Ashtabula, O.
CLEVELAND Tanning Co. (The), Jennings and Dennison Ave., Cleveland, O.
DIAMOND Leather Co., Peabody, Mass.
DUSENBURY & Son, C. Coles, New York, N. Y.
HALSEY & Smith, J. H. Shipman and Springfield Ave., Newark, N. J.
HOWELL & Co., T. P. Newark, N. J.
RASER Tanning Co., Ashtabula, O.
REX Imperial Leather Co., 12 Chappel St., Newark, N. J.
STANDARD Leather Co., Allegheny, Pa.

LEATHER (Artificial)

BOSTON Artificial Leather Co., 12 E. 18th St., N. Y. City.
PANTASOTE Leather Co. (The), 29 B'way, N. Y. City.

LEGGINGS (See Clothing)

LEVERS (Hand)

GARFORD Co. (The), Elyria, O. (see page 7).

LICENSE NUMBER (See Name Plates)

LOCKERS (For Clothing)

ART Metal Construction Co., Jamestown, N. Y.
DARBY & Sons Co., Edward, 233 Arch St., Philadelphia, Pa.

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LUBRICANTS (See Oils and Greases)

LUBRICATORS

AMERICAN Injector Co., Detroit, Mich.
AMERICAN Lubricator Co., Detroit, Mich.
AUTO Brass & Aluminum Co., Flint, Mich.
BAY State Stamping Co., Worcester, Mass.
BOWEN Mfg. Co., Auburn, N. Y.
CHARTER Mfg. Co., 59 Clark St., Chicago, Ill.
DETROIT Lubricator Co., 12 Hodges Bldg., Detroit, Mich.
DODGE Lubricator Co., 36 Columbus Ave., Boston, Mass.
ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.
FRASSE Co. (The), 38 Cortlandt St., N. Y. City.
GLOBE Mach. & Stamping Co., Cleveland, Ohio.
GREENE, Tweed & Co., 17 Murray St., N. Y. City.
HANCOCK Inspirator Co. (The), 85 Liberty St., N. Y. City.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
IMPERIAL Brass Mfg. Co. (The), 245-247 So. Jefferson St., Chicago, Ill. (see page 73).
KELLY & Jones Co. (The), Greensburg, Pa.
KING, James D., 433 De Kalb Ave., Brooklyn, N. Y.
KINSEY Mfg. Co., Dayton, O. (see back cover).
LEE Injector Co. (The), Port Huron, Mich.
LOCKE Regulator Co., Salem, Mass.
LUNKENHEIMER Co. (The), Cincinnati, O.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page opposite).
M'RAE & Roberts Co., Detroit, Mich.
MADISON-Kipp Mfg. Co., Madison, Wis.
MAGNET Cement & Dressing Co., 878 No. 48th St., Phila., Pa.
MICHIGAN Lubricator Co., 661 Beaubien St., Detroit, Mich.
NATHAN Mfg. Co., 86 Liberty St., N. Y. City.
NOERA Mfg. Co., Waterbury, Conn.
PEDERSEN, J. T., 644 First Ave., New York, N. Y.
PENBERTHY Ejector Co., 220 Abbot St., Detroit, Mich.
PHENIX Metallic Packing Co., 7-9 So. Jefferson St., Chicago, Ill.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.
STAR Brass Mfg. Co., 108 E. Dedham, St., Boston, Mass.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page opposite).
TUCKER, W. W. & C. F., Hartford, Conn.
WILLIAM Powell Co. (The), 2525 Spring Grove Ave., Cincinnati, O.
WINKLEY Co. (The), 66 State St., Hartford, Conn.

MACHINERY (Special Automobile)

BARNES, W. F. & John, Co., Rockford, Ill.
BEAMAN & Smith Co. (The), Providence, R. I.
BROWN & Sharpe Mfg. Co., Providence, R. I.
BULLARD Mach. Co., Bridgeport, Conn.
CINCINNATI Electric Tool Co., 650-652 Evans St., Cincinnati, O.
CINCINNATI Milling Machine Co., Cincinnati, Ohio.
FELLOWS Gear Shaper Co. (The), Springfield, Vt.
FIELD Co., Chas. H., 230 Chestnut St., Providence, R. I.
FITCHBURG Machine Wks., Fitchburg, Mass.
FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.
GARDAM & Son, Wm., 45-51 Rose St., New York.
GARVIN Machine Co., Spring & Varick Sts., New York.
GEOMETRIC Tool Co., Westville Sta., New Haven, Conn.
GISHOLT Machine Co., Madison, Wis.
HARTFORD Machine Screw Co., Hartford, Conn.
HEALD Machine Co. (The), Worcester, Mass.
HILL, Clarke & Co., 156 Oliver St., Boston, Mass.
HISEY-Wolf Machine Co., Cincinnati, O.
KEMPSMITH Mfg. Co. (The), Milwaukee, Wis.
LANDIS Tool Co., Waynesboro, Pa.
LAPOINTE Machine Tool Co., Boston, Mass.
NILES-Bement-Pond Co., 136 Liberty St., New York.
NORTON Grinding Co., Worcester, Mass.
NOVELTY Tufting Machine Co., 192 Michigan Ave., Chicago, Ill.
POTTER & Johnston Machine Co., Pawtucket, R. I.
PRATT & Whitney Co. (The), Hartford, Conn.
PRENTISS Tool & Supply Co., 115 Liberty St., N. Y. City.
SPRINGFIELD Mach. Tool Co., Springfield, Ohio.
STANDARD Tool Co., Cleveland, Ohio.
STEPTOE Shaper Co. (The), Jno., Cincinnati, O.
VON WYCK Machine Tool Co., Cincinnati, Ohio.
WHITNEY Mfg. Co., Hartford, Conn.
WHITON, D. E. Machine Co., New London, Conn.

MAGNETOS (See Igniting Devices)

MAPS (Road)

MENDENHALL, C. S., 512 Race St., Cincinnati, O.
OFFICIAL Automobile Blue Book, Flatiron Bldg., N. Y. City. (see page 108).

MARKERS (See Name Plates)

MATS (Rubber)

BOSTON Woven Hose Co., Cambridge, Mass.
DIAMOND Rubber Co., Akron, O.
EMPIRE Rubber Co., Trenton, N. J.
GOODRICH, B. F., Co., Akron, O.
HARTFORD Rubber Works Co., Hartford, Conn.
MANHATTAN Rubber Co., 18 Vesey St., N. Y. City.
MONARCH Rubber Co., 41 N. 7th St., Philadelphia, Pa.

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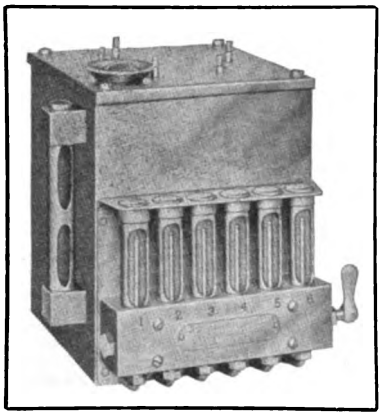

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NEW JERSEY Car Spring & Rubber Co., Wayne & Brunswick Sts., Jersey City, N. J.

PEERLESS Rubber Mfg. Co., 16 Warren St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).

VICTOR Rubber Co. (The), Springfield, O.

METALS (Babbitt)

ADVANCE Mfg. Co., Todd Bldg., Kalamazoo, Mich.

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).

COLUMBIA Smelting & Refining Co., 307 Water St., N. Y. City.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

MAGNOLIA Metal Co., 113-115 Bank St., N. Y. City.

MUZZY-Lyon Co. (The), Detroit, Mich.

PHOSPHOR-Bronze Smelting Co. (The), Ltd., 2200 Washington Ave., Phila., Pa.

REEVES, Paul S., & Son, 1415 Catherine St., Phila., Pa.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 33).

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

METALS (Brass and Copper)

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).

ANSONIA Brass & Copper Co., Ansonia, Conn.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CHICAGO Brass Co., Kenosha, Wis.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DETROIT Copper & Brass Rolling Mills, Detroit, Mich.

EATON, Cole & Burnham, 253 Broadway, N. Y. City.

ELECTRIC Smelting & Aluminum Co. (The), Lockport, N. Y.

HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

NEW HAVEN Copper Co., New Haven, Conn.

RANDOLPH-Clowes Co., Waterbury, Conn.

METAL (Perforated)

ATCHISON, The Robt., Perforated Metal Co., 303 Dearborn St., Chicago, Ill.

HARRINGTON & King Perforating Co., 236 N. Union St., Chicago, Ill.

MICA (Insulation)

AMERICAN Mica Co., Newton Lower Falls, Mass.

AMERICAN Mica Mining & Milling Co., Cuyahoga Falls, O.

ASHEVILLE Mica Co., Asheville, N. C.

CAROLINA Locust Pin & Mica Co., Franklin, N. C.

CHICAGO Mica Co., Valparaiso, Ind.

MICA Insulator Co., New York and Chicago.

MICA Manufacturing Co., New York, N. Y.

MUNSELL, Eugene, & Co., 218 Water St., N. Y. City.

NORTH Carolina Mica Co., Boston, Mass.

SCHOONMAKER, A. O., 221 Fulton St., N. Y. City.

SILLS-Eddy Mica Co., Newark, N. J.

UNION Mica Co., 56 Pine St., N. Y. City.

VANCE, D. T., Plumtree, N. C.

MODEL MAKERS (See Pattern Makers)

MOTORCYCLE ACCESSORIES

A. & J. Mfg. Co., 13 S. Canal St., Chicago, Ill.

ARMAS Motor Co., Sheldon & Carroll Aves., Chicago, Ill.

AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).

BARBER, A. S., Coney Island Cycle Path, Brooklyn, N. Y.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).

BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.

CURTIS, G. H., Mfg. Co., Hammondsport, N. Y.

DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.

EUREKA Mfg. Co., St. Paul, Minn

GEER & Co., Harry R., 1018 Pine St., St. Louis, Mo. (Dealer and Jobber).

HART Mfg. Co., 370 Atlantic Ave., Boston, Mass.

HENDEE Mfg. Co., 216 Worthington St., Springfield, Mass.

HOLLAND Auto Co. (The), 60-62 Van Winkle Ave., Jersey City, N. J.

METZ, C. H., Waltham, Mass.

PARAGON Motor Co., Springfield, Mass.

PARKIN, J. W. & Son, 2613 No. Broad St., Phila., Pa.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).

STANDARD Welding Co., Cleveland, O.

STEFFEY Mfg. Co., 2722 Brown St., Phila., Pa.

THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.

WAGNER Cycle Co., 41-43 4th St., St. Paul, Minn.

WILLIAMSON, Thos. G., 8 So. 39th St., Philadelphia, Pa.

MOTORS (Cycle)

ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.

AURORA Automatic Machinery Co., 421 Claim St., Aurora, Ill.

BARBER, A. S., Coney Island Cycle Path, Brooklyn, N. Y.

BRADLEY, C. E., Motor Co., 268 Diamond St., Phila., Pa.

BUCKEYE Motor Co., 201 So. High St., Columbus, O.

CULP, Thomas S., 625-627 Mahoning St., Canton, O.

DRIVER, Walter, 700 W. Lehigh Ave., Philadelphia, Pa.

DUSENBERG, A. S., Garner, Ia.

FERODOWILL Mfg. Co., 214 W. Indiana St., St. Paul, Minn.

GEER Co., Harry R., 1018 Pine St., St. Louis, Mo.

GIANT Motor Co., Newark, N. J. (see page 45).

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HARPER, F. R., Beverley, Mass.
HOLLAND Auto Co. (The), 60-62 Van Winkle Ave., Jersey City, N. J.
KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page opposite).
LACKAWANNA Mfg. Co., Newburgh, N. Y.
LAMSON Machine Co., Abington, Mass.
MAYO Damper Co., 355 Walnut St., Pottstown, Pa.
MERKEL Motor Co. (The), 1095-1097 26th Ave., Milwaukee, Wis.
PARKIN, J. W., & Son, 2613 No. Broad St., Phila., Pa.
PARAGON Motor Co., 3 Walnut St., Springfield, Mass.
PIONEER Motor Cycle Co., 290 Grove St., Jersey City, N. J.
STEFFEY Mfg. Co., 2722 Brown St., Philadelphia, Pa.
THOMAS, E. R., Motor Co., 1209 Niagara St., Buffalo, N. Y.
UNION Motor Co., Portage, O.
WAGNER Cycle Co., 41-43 W. 4th St., St. Paul, Minn.
WILLIAMSON, Thos. G., 8 So. 39 th St., Philadelphia, Pa.

MOTORS (Electric)

BROWNING Mfg. Co., Milwaukee, Wis.
BULLOCK Electric Co., Cincinnati, O.
C. & C. Electric Co., 143 Liberty St., N. Y. City.
CHAPMAN, W. H., Portland, Me.
EDDY Electric Mfg. Co. (The), Windsor, Conn.
ELECTRIC Vehicle Equipment Co., 20th & Montgomery Ave., Philadelphia, Pa.
ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.
FT. WAYNE Electric Works, Ft. Wayne, Ind.
GENERAL Electric Co., Schenectady, N. Y.
GILMORE Electric Co., 625 First St., Boston, Mass.
HERTNER Electric Co., Cleveland, O.
KENDRICK & Davis, Lebanon, N. H.
LAMB & Co., Kent & Lyons Sts., Grand Rapids, Mich.
LINCOLN Electric Co., World Bldg., Cleveland, O.
MERRIAM-Abbot Co., 60 E. Prospect St., Cleveland, O.
MILWAUKEE Electric Co., Milwaukee, Wis.
PARSELL & Weed, 129-131 W. 31st St., N. Y. City
ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.
SPRAGUE Electric Co., 527 W. 34th St., N. Y. City.
STERLING Electric Motor Co., Dayton, O.
STOREY Motor & Electric Co., 321 Sussex St., Harrison, N. J.
WAGNER Electrical Mfg. Co., St. Louis, Mo.
WESTINGHOUSE Elec. & Mach. Co., Pittsburg, Pa.

MOTORS (Gaso. Auto)

ALEXANDER & Crouch, 41 So. Canal St., Chicago, Ill.
BADECKER Gas Engine Co., Omaha, Neb.
BEAVER Mfg. Co., Barclay & Oregon Sts., Milwaukee, Wis. (see page opposite).
BEILFUSS Motor Co. (The), E. Saginaw St., Lansing, Mich.
BEVERLY Mfg. Co., Beverly, Mass.
BOWEN Motor Co., 92 Boynes St., Buffalo, N. Y.
BRENNAN Motor Co., Syracuse, N. Y.
BROWNELL-Trebert Co., 408 St. Paul St., Rochester, N. Y.
BUCHNER CO., Albert, 911 So. Homan Ave., Chicago, Ill.
BUCKEYE Motor Co., Columbus, O.
BUFFALO Engine Co., 12-20 Perry St., Buffalo, N. Y.
BUFFALO Gasoline Motor Co., 1286 Niagara St., Buffalo, N. Y.
BURTT Mfg. Co., 128 No. Edward St., Kalamazoo, Mich.
CARLSON, Charles A., 1060 Bedford Ave., Brooklyn, N. Y.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CONTINENTAL Engine Co., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
CUSHMAN Motor Co. Lincoln, Neb.
DART Mfg. Co., 526 Sheffield Ave., Chicago, Ill.
DAVIS Mfg. Co., 935 30th St., Milwaukee, Wis.
DESMARAIS, P., Root Island St., Bristol, Conn.
DURYEA Power Co., Reading, Pa.
FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.
GIANT Motor Co., Newark, N. J. (see page 45).
GRANT-Ferris Co., Troy, N. Y.
GOSHEN Motor Works, Goshen, Ind.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HOFFMAN Motor Co., H. L., 384 Wabash Ave., Chicago, Ill.
HOMAN, J. & E., 380 West Broadway, N. Y. City.
ILLINOIS Auto & Parts Co., Globe & Main Sts., Peoria, Ill.
KAESTNER Mfg. Co., Chas., South Bend, Ind.
KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page opposite).
LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.
LELAND & Faulconer Mfg. Co., 480-500 Twombly Ave., Detroit, Mich. (see page 25).
LOWELL Model Co., Lowell, Mass.
LOZIER Motor Co., Plattsburgh, N. Y.
M'FARLAND Foundry & Machine Works, Trenton, N. J.
MAXWELL & Fitch Co., 218 So. Washington St., Rome, N. Y.
MERKEL Motor Co., 1095 26th Ave., Milwaukee, Wis.
MILWAUKEE Auto Engine & Supply Co., 706-708 Winnebago St., Milwaukee, Wis.
MILWAUKEE Motor Co., 615 Clybourn Ave., Milwaukee, Wis.
MODEL Gas Engine Works, Auburn, Ind.
MOHLER & DeGress, 390 Webster Ave., Long Island City, N. Y.
MOTOR Car Power Equipment Co., rear 577 Grove St., Milwaukee, Wis.
MURRAY, W. B., 1253 Milwaukee Ave., Chicago, Ill.
NATIONAL Sewing Machine Co., Belvidere, Ill.
NORTH Chicago Mach. Co. (The), North Chicago, Ill.
O. K. Gas Engine Works, Winchester, O.
OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.
PELTON Gaso. Eng. Works, Lyons, Ia.

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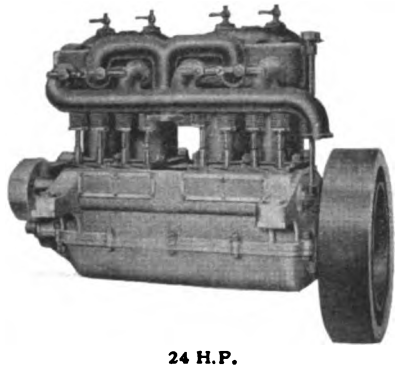

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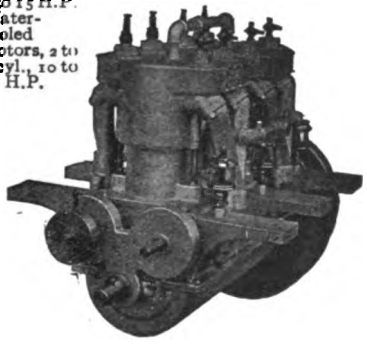

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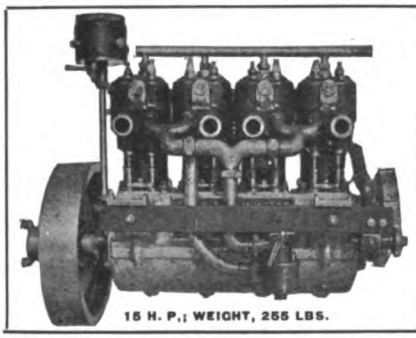

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PIERCE Engine Works, Racine Junction, Wis.
ROCHESTER Die Shaper Co., Rochester, N. Y.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.
SMITH & Williams, 149 W. State St., Columbus, O.
SPEED Changing Pulley Co., Indianapolis, Ind. (see page 29).
STREIT Machine Co., A., 1108-10 Harrison Ave., Cincinnati, O.
STROBEN, John, 1416 W. Locust St., Davenport, Ia.
STURTEVANT Mill Co., Harrison Sq., Boston, Mass.
TORBENSEN Gear, Inc., Bloomfield, N. J.
TREBERT Gas Engine Co., 263 West Main St., Rochester, N. Y.
VAN AUKEN-Clevance Co., Yonkers, N. Y.
WALKER Motor & Machine Co., 109 Fort St., E., Detroit, Mich.
WESTERFIELD Motor Co. (The), Anderson, Ind.
WESTERN Auto Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Motor Co., Logansport, Ind.

MOTORS (Gasoline, Marine)

AYRES Gasoline Eng. & Auto Works, Saginaw, Mich.
BADECKER Gas Engine Co., Omaha, Neb.
BADGER Motor Co., Milwaukee, Wis.
BARBER Bros., 502 E. Water St., Syracuse, N. Y.
BRENNAN Motor Co., Syracuse, N. Y.
BROWN-Talbot Co., Salem, Mass.
BROWNELL-Trebert Co., 408 St. Paul St., Rochester, N. Y.
BUFFALO Gasoline Motor Co., 1286 Niagara St., Buffalo, N. Y.
CAMDEN Anchor-Rockland Machine Co., Rockland, Me.
CARLSON, Chas. A., 1060 Bedford Ave., Brooklyn, N. Y.
CHICAGO Caloric Engine Co., 536 Wabash Ave., Chicago, Ill.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CONTINENTAL Engine Co., Chicago, Ill.
CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.
CRAIG & Scott, 556 W. 34th St., New York.
CUSHMAN Motor Co., Lincoln, Neb.
DE MOOY Bros., 765-767 Willson Ave., Cleveland, O.
DETROIT Auto Marine Co., 82 Congress St., E. Detroit, Mich.
DOMAN Co., H. C., Oshkosh, Wis.
DULUTH Gas Engine Works, Minnesota Ave. & Vine St., Duluth, Minn.
ERICSSON & Moon Mfg. Co. (The), Second St., Detroit, Mich.
ESSEX Engine Co. (The), 416 Union St., Lynn, Mass.
FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.
FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.
FAY & Bowen Mfg. Co., Geneva, N. Y.
GRAY Motor Boat Co., 453 Guoin St., Detroit, Mich.
HASBROUCK Motor Works, Inc., New London, Conn.
HERCULES Electric & Mfg. Co., Indianapolis, Ind.
HILDRETH Motor & Pump Co. (The), Waterside Ave., Lansing, Mich.
HOFFMAN Motor Co., H. L., 384 Wabash Ave., Chicago, Ill.
HUBBARD Motor Co., Middletown, Conn.
KAHLENBERG Bros., Two Rivers, Wis.
KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 65).
KOWALSKY Engine Co. (The), J., Verona, Pa.
LACKAWANNA Mfg. Co., Newburgh, N. Y.
LAMB Boat & Engine Co., Clinton, Ia.
LOZIER Motor Co., Plattsburgh, N. Y.
MASSICK Mfg. Co., 671 E. Atwater St., Detroit, Mich.
MIANUS Motor Works, Mianus, Conn.
MILWAUKEE Motor Co., 615 Claybourn Ave., Milwaukee, Wis.
MOHLER & DeGress, 390 Webster Ave., Long Island City, N. Y.
NEW LONDON Motor Co., New London, Conn.
NORTH Chicago Mach. Co. (The), North Chicago, Ill.
NOYE Mfg. Co., Buffalo, N. Y.
OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.
PALMER Bros., Cos Cob, Conn.
PHILLIPS Motor Works, 405 Tacoma Bldg., Chicago, Ill.
PIERCE Engine Works, Racine Junction, Wis.
PIGGINS Bros., Racine, Wis.
RATHBUN-Lacey Co., 609 Segur Ave., Toledo, O.
ROCHESTER Gas Engine Co., 705 Driving Park Ave., Rochester, N. Y.
SEITZ Co., F. A., 141 Frelinghuysen Ave., Newark, N. J.
SMALLEY Motor Co., Ltd., Bay City, Mich.
SMITH & Williams, 149 W. State St., Columbus, O.
STERLING Engine Co., 119-121 Grant St., Buffalo, N. Y.
STRELINGER Co., Chas. A., Cor. Bates and Congress Sts., Detroit, Mich.
TEMPLE Pump Co. (The), 15th St. and 15th Pl., Chicago, Ill.
TERMAAT & Monahan Co., Oshkosh, Wis.
TREBERT Gas Engine Co., 263 W. Main St., Rochester, N. Y.
UNITED Mfg. Co., 175 Woodbridge St., Detroit, Mich.
VIRTUE & Pond Mfg. Co., Owatanna, Minn.
WALKER Motor & Mach. Co., 109 Fort St., E., Detroit, Mich.
WESTERN Auto Supply Co., 285 Virginia St., Milwaukee, Wis.
WESTERN Gas Engine Co., Michigan City, Ind.
WESTERN Launch & Engine Works, Michigan City, Ind.

MOTORS (Kerosene)

ACME Oil Engine Co., Union Ave., near R. R., Bridgeport, Conn.
BUFFALO Gasoline Motor Co., Niagara St., Buffalo, N. Y.
DIESEL Motor Co., 11 Broadway, N. Y. City.
FRANTZ Mfg. Co., Cherryville, Pa.
INTERNATIONAL Power Vehicle Co., 216 Pacific St., Stamford, Conn.
MIETZ, A., 128 Mott St., N. Y. City.
NEW YORK Kerosene Oil Motor Co. (The), 31 Burling Slip, New York, N. Y.
ST. ANNE Kerosene Motor Co., St. Anne, Ill. see page opposite).

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A-Z Co. (The), 462 11th Ave., N. Y. City.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.
BYRNE, Kingston & Co., Kokomo, Ind.
BUCHNER Co., Albert, 911 So. Homan Ave., Chicago, Ill.
CHAMPION Mfg. Co., 9-15 Alling St., Newark, N. J.
GRAY Hawley Mfg. Co., 605-609 Fort St. W., Detroit, Mich.
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HAYNEY, Geo. F., Lynn, Mass.
W. J. KELLS Mfg. Co., Jersey City, N. J. (see page 39).
KINSEY Mfg. Co., Dayton, O. (see back cover.
LOOMIS Autocar Co., Westfield, Mass.
MAYO Damper Co., 355 Walnut St., Pottstown, Pa.
MILWAUKEE Motor Co., Milwaukee, Wis.
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
MOTOR Car Power Equipment Co., rear 577 Grove St., Milwaukee, Wis.
MOTOR & Mfg. Works Co., Ithaca, N. Y.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
SMITH & Co., D. B., Utica, N. Y.
TURNER Brass Works, Chicago, Ill.
WEEBER, C. F., Mfg. Works, 255 Sherman St., Albany, N. Y.
WESTERFIELD Motor Co., Anderson, Ind.
WESTERN Motor Co., Logansport, Ind.

MUFFLERS (Neck)

SCOTT Muffler Co. (The), Portsmouth, O. (see opposite page).
WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

NAME PLATES

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 31).
ALUMINUM Mfg. Co., Two Rivers, Wis.
ATWOOD Mfg. Co., Amesbury, Mass.
AUTO Brass & Aluminum Co., Flint, Mich.
BALTIMORE Enamel & Novelty Co., Baltimore, Md.
BECKER, August, 247 Atlantic Ave., Boston, Mass.
BLACKINGTON & Co., V. H., Attleboro Falls, Mass.
CHANDLER Co., (The), 31 Taylor St., Springfield, Mass.
CHILDS, S. D. & Co., 200 So. Clark St., Chicago, Ill.
CROWE Metal Mfg. Co., Chicago, Ill.
DETROIT Rubber Stamp Co., 99 Griswold St., Detroit, Mich.
EASTWOOD Wire Mfg. Co., Belleville, N. J.
ENGLISH & Mersick Co., New Haven, Conn.
FINE, Horace E., Trenton, N. J.
GREACEN & Co., Walter, 12 Mechanic St., Newark, N. J.
IMPERIAL Brass Mfg. Co., 207 So. Jefferson St., Chicago, Ill. (see page 73).
MEYERCORD Co. (The), Chamber of Commerce, Chicago, Ill.
MORSE, C. H., & Son., 13 So. Water St., Rochester, N. Y.
MURDOCK Corporation, Boston, Mass.
MURDOCK, Jas., Jr., Co., 116 Opera Place, Cincinnati, O. (see page 93).
N. J. Aluminum Co., Newark, N. J.
NEW YORK Stencil Works, New York, N. Y.
QUINT, S. H., & Sons, 15 So. 4th St., Philadelphia, Pa.
REES, F. H., Steele Memorial Bldg., Elmira, N. Y.
ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.
ROGERS, C. E., 34 Beach St., Boston, Mass.
SMITH, R. H., Mfg. Co. (The), Springfield, Mass. (see page 55).
SPENCER'S Sons, I. S., Guilford, Conn.
STAFFORD Co., N., 67 Fulton St., New York.
TORREY Roller Bushing Works, Bath, Me.
TURNER Brass Works (The), Franklin & Michigan Sts., Chicago, Ill.
WADSWORTH Engraving Co., 21 W. Washington St., Springfield, O.
WALTER, N. C., & Sons, 194 William St., N. Y. City.

NICKEL-PLATING OUTFITS

HANSON & Van Winkle, 219 Market St., Newark, N. J.
ZUCKER, Leavitt & Loeb, 526 W. 25th St., N. Y. City.

NIPPLES

CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.
HARTFORD Machine & Screw Co., 476 Capitol Ave., Hartford, Conn.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
JUDD & Leland Mfg. Co., Clifton Springs, N. Y.
PARK City Brass Co., Springfield, Mass.
PARKER, E. N., Springfield, Mass.
PEET, R. J., Hamilton, N. Y.
SHRIMPTON Mfg. Co., Church St., N. Y. City.
STANDARD Spoke & Nipple Co., Torrington, Conn.
STEVENS & Co., New York, N. Y.
TILEY-Pratt Co. (The), Essex, Conn.
TOLEDO Metal Wheel Co., Toledo, O.
WIRE Goods Co. (The), Worcester, Mass.
YOUSE, E. S., Reading, Pa.

NUTS AND WASHERS (Lock)

ALLISON Mfg. Co., Philadelphia, Pa.
AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.
COLUMBIA Nut & Bolt Co., Bridgeport, Conn.
EUREKA Nut Lock Co., Pittsburg, Pa.
MICHIGAN Bolt and Nut Co., Detroit, Mich.
NATIONAL Elastic Nut Co., Milwaukee, Wis.

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NATIONAL Lock Washer Co., Newark, N. J.
POSITIVE Lock Washer Co., Newark, N. J.
SPIRAL Nut Lock Co., New York, N. Y.

ODOMETERS (See Indicators—Speed and Distance)

OILS

ALEXANDER & Co., H. T., 17 State St., N. Y. City.
ALLERTON Oil and Grease Co., 78 Broad St., N. Y. City (see page 43).
AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BESLY & Co., C. H., Chicago, Ill.
BORNE-Scrymser Co., Claremont, N. J.
BRUCK Solidified Oil Co., 256 Dover St., Boston, Mass.
CHAMPION Oil Co., 73 Jackson Blvd., Chicago, Ill.
CHESTERTON & Co., A. W., 64 India St., Boston, Mass.
CHILDS Co., G. B. (The), 499 Greenwich St., N. Y. City.
CLARK, E. W., & Co., 89 New Chambers St., N. Y. City.
COLE, G. W. Co., 141 Broadway, N. Y. City.
COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).
CURRY Oil & Supply Co., Boston, Mass.
DEARBORN Drug & Chemical Works, Chicago, Ill.
DIXON, Jos., Crucible Co., Wayne & Monmouth Sts., Jersey City, N. J.
EMERY Mfg. Co., 41 Main St., Bradford, Pa.
ENERGINE Co. (The), 833 Cuyahoga Bldg., Cleveland, O. (see page 11).
Excelsior Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FISKE Bros. Refining Co., 59 Water St., N. Y. City.
GALENA Signal Oil Co., Franklin, Pa.
HALL, G. E., 211 Centre St., N. Y. City.
HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).
HAVEMEYER Oil Co., 78 Broad St., N. Y. City.
HOFFMAN Lubricating Oil Co., Binghamton, N. Y.
HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.
KANTER Co., R. J., 647 Water St., N. Y. City.
KELLOGG, E. H., Co., 243-244 South St., N. Y. City.
KEYSTONE Lubricating Co., 20th and Allegheny Aves., Philadelphia, Pa.
LUBRON Mfg. Co., 89 Broad St., Boston, Mass.
MACLEAN Oil & Supply Co., 463 Atlantic Ave., Boston, Mass.
MAGIE Bros., 9-11 No. Canal St., Chicago, Ill.
MARION Mfg. Co., Franklin, Pa.
METALLIC Lubricating Oil Co., Millersburg, Pa.
MILLER'S Sons, Wm. P., 100 Greenpoint Ave., Brooklyn, N. Y.
MONARCH Mfg. Co., Toledo, O.
MOORE, C. H., Oil Co., Logansport, Ind.
NATIONAL Cement & Rubber Mfg. Co. 3053-59 Monroe St., Toledo, O.
N. Y. & N. J. Lubricant Co., 15 Church St., N. Y. City (see page 49).
NYE, Wm. F., New Bedford, Mass.
O-U-T-O Co. (The), 19 Camfield St., Newark, N. J.
PENN Oil & Supply Co., Chicago, Ill.
PHILADELPHIA Grease Mfg. Co., Philadelphia, Pa.
PIGOT, Sayre & Co., 135 William St., N. Y. City.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
PULVER & Sons, Peter, N. Y. City.
RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.
RICHARDSON Lubricating Co., Quincy, Ill.
ROBINSON, Son & Co., Wm. C., Baltimore, Md.
ROYAL Lub. Oil Co., 116 Broad St., N. Y. City.
ROYAL Oil Co., 2 Platt St., N. Y. City.
SPEAR'S Sons Co., The Alden, 369 Atlantic Ave., Boston, Mass.
STANDARD Oil Co., 26 Broadway, N. Y. City.
STAR Lubricating Co., N. Y. City.
STERLING Oil Co., Emlenton, Pa.
SWAN & Finch Co., 151 Maiden Lane, New York.
UNDERHAY Oil Co., 275 Franklin St., Boston, Mass.
VACUUM Oil Co., Rochester, N. Y.
VALVOLINE Oil Co., 27 State St., Boston, Mass.
VISCOSITY Oil Co., Chicago, Ill.
WADHAMS Oil & Grease Co., Milwaukee, Wis.
WEBER Oil & Gaso. Co., 145 Kingston St., Boston, Mass.
WINN, F. R., Co., 147 Maiden Lane, N. Y. City.
YOUNG, O. W., Newark, N. J.

OILS (Non-Fluid, Non-Liquid)

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).
N. Y. and N. J. Lubricant Co., 14 Church St., New York (see page 49).

OIL CANS

AKRON Mfg. Co., 927 S. Hight St., Akron, O.
AMERICAN Tube & Stamping Co., Bridgeport, Conn.
BROWN Oil Can Co., Toledo, O.
GEM Mfg. Co., Pittsburg, Pa.
MANUFACTURERS Can Co., Mulberry and South Sts., N. Y. City.
MAPLE City Mfg. Co., Monmouth, Ill.
MOSHER, M. E., Rochester, N. Y. (see page 73).
NOERA Mfg. Co., Waterbury, Conn.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
SAFETY Oiler Co., 65 Nassau St., N. Y. City.
SCOVILL Mfg. Co., Waterbury, Conn.
SMITH, S. W., Keithsburg, Ill.
STODDARD, Haserick, Richards Co., 152 Congress St., Boston, Mass.

OIL CUPS

AURORA Automatic Mach. Co., Aurora, Ill.
BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

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DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.
DURYEA Power Co., Reading, Pa.
ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.
LUNKENHEIMER Co. (The), Cincinnati, O.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
SHERWOOD Mfg. Co., Buffalo, N. Y.
STAR Brass Mfg. Co., 108-14 E. Dedham St., Boston, Mass.
TUCKER, W. W. & C. F., Hartford, Conn.
WINKLEY Co. (The), Detroit, Mich.

OIL GUNS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page 71).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
GLEASON-Peters Air Pump Co., 20 West Houston St., New York.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.
MILLER, Charles E., 97 Reade St., N. Y. City. (Dealer and Jobber.)
N. Y. and N. J. Lubricant Co., 15 Church St., New York (see page 49).
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
RANDALL-Faichney Co., Boston, Mass. (see page opposite).

OIL-HOLE COVERS

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.
BOWEN Mfg. Co., Canal St., Auburn, N. Y.
BOWN Machine Works, Battle Creek, Mich.
TUCKER W. W. & C. F., 302 Asylum St., Hartford, Conn.
WINKLEY Co. (The), Detroit, Mich.

OIL PUMPS

BOSTON Auto Exch., 173-177 Berkeley St., Boston, Mass.
BOWEN Mfg. Co., Canal St., Auburn, N. Y.
DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.
ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.
GOULDS Mfg. Co. (The), Seneca Falls, N. Y.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page opposite).
LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.
MADISON-Kipp Mfg. Co., Madison, Wis.
MANZEL Bros. 46-48 Broadway, N. Y. City.
M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 61).
SHERWOOD Mfg. Co., Buffalo, N. Y.
SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.
STAR Brass Mfg. Co., 108-114 E. Dedham St., Boston, Mass.

PACKING

AMERICAN Steam Packing Co., Boston, Mass.
BOOTH, N. E., 261 39th St., Boooklyn, N. Y. (see page 27).
BOSTON Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
CHESTERTON & Co., A. W., 64 India St., Boston, Mass.
CHICAGO Rawhide Mfg. Co., 75-77 Ohio St., Chicago, Ill.
EAGLE Oil & Supply Co., 104 No. Broad St., Boston, Mass.
GOULD Packing Co., 88 E. Cambridge St., E. Cambridge, Mass.
GREENE, Tweed & Co., 17 Murray St., N. Y. City.
JOHNS-Manville, H. W., Co., 100 William St., N. Y. City.
KEASBEY, Robert A., 83 Warren St., N. Y. City.
KEASBY-Mattison Co., Ambler, Pa.
N. J. Asbestos Co., Camden, N. J.

PAINTS

ACME White Lead & Color Works, Detroit, Mich.
BERRY Bros., Ltd., Detroit, Mich. (see front cover).
BILLINGS-Chapin Co. (The), Cleveland, O.
BRANT, Randolph, 38 Cortlandt St., N. Y. City.
BUFFALO Enamel & Stain Co., Buffalo, N. Y.
DETROIT White Lead Works, Detroit, Mich.
DITZLER Paint & Color Works, 14 Baltimore Ave., West Detroit, Mich.
FELTON, Sibley & Co., 136-140 No. 4th St., Philadelphia, Pa.
FOWLER Elastic Enamel Paint Co., 589 W. Lake St., Chicago, Ill.
MASURY & Son, John W., 44-50 Jay St., Brooklyn N. Y.
PATTERSON-Sargent Paint Co., Cleveland, Ohio.
SCHRACK, C., & Co., 152 No. 4th St., Philadelphia, Pa.
SHERWIN-Williams Paint Co., 100 Canal St., Cleveland, O.
STANDARD Varnish Works, 29 Broadway, N. Y. City.
VALENTINE & Co., 257 Broadway, N. Y. City.

PANELS (Wood)

AMERICAN Veneer Co., Kenilworth, N. J.
BOTHNER Hardwood Moulding Co., 1945 Park Ave., N. Y. City.
DANN Bros. Co. (The), 80 Franklin St., New Haven, Conn.
OHIO Scroll & Lumber Co., Covington, Ky.

PANS (Drip)

DOVER Stamping & Mfg. Co., 385 Putnam Ave., Combridge, Mass.

PATTERN MAKERS

AUTO Brass & Aluminum Co., Flint, Mich.
BALKWILL Pattern Works, 970 Hamilton St., Cleveland, O.
GARDAM & Son, Wm., 45 Rose St., N. Y. City.
HARTFORD Pattern & Model Co., Inc. (The), 14 Hicks St., Hartford, Conn.
HOPSON-Chapin Mfg. Co., New London, Conn.

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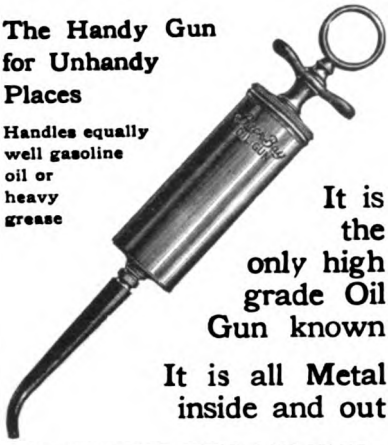

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McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).

MEISEL Press & Mfg. Co., 944-948 Dorchester Ave., Boston, Mass.

MODEL Pattern Works, Washington and Perry Sts., Buffalo, N. Y.

OLMSTEAD, H. B. Co., 663 Manhattan Ave., Brooklyn, N. Y.

PARSELL & Weed, 129-131 W. 31st St., N. Y. City.

SCHMIDT & Mueller, 703 Winnebago St., Milwaukee, Wis.

STANDARD Pattern Works, Detroit, Mich.

PATTERN PLATES

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 93).

PIPE (Wrought Iron or Steel)

BYERS & Co., A. M., Pittsburg, Pa.

CONSHOHOCKEN Tube Co., Conshohocken, Pa.

CRANE Co., Chicago, Ill.

HARRISBURG Pipe & Pipe Bending Co., Harrisburg, Pa.

LA BELLE Iron Works, Steubenville, O.

MARK Mfg. Co., Evanston, Ill.

NATIONAL Tube Co., New York, N. Y.

READING Iron Co., Reading, Pa.

SHELBY Steel Tube Co., Pittsburg, Pa.

SOUTH CHESTER Tube Co., Chester, Pa.

SPANG, Chalfant & Co., Pittsburg, Pa.

UNITED STATES Tube & Iron Co., Pittsburg, Pa.

WESTERN Tube Co., Kewanee, Ill.

YOUNGSTOWN Iron, Steel & Tube Co., Youngstown, O.

PIPE COILS

A-Z Co. (The), 462 11th Ave., N. Y. City.

BLISS-Chester Co., Providence, R. I.

NATIONAL Pipe Bending Co., New Haven, Conn.

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 77).

PISTON RINGS

DETROIT Trolley & Mfg. Co., Ltd., Detroit, Mich.

HAGUE & Co., 6123 Penn Ave., E. Pittsburg, Pa.

PLATINUM

AMERICAN Platinum Works, Newark, N. J.

BAKER & Co., 408 N. J. R. R. Ave. Newark, N. J.

CROSELMIRE Co., C. F., 251 N. J. R. R. Ave., Jersey City, N. J.

GOLDSMITH Bros., Chicago, Ill.

PLIERS AND NIPPERS (See Tools)

POLISHES (Body and Metal)

AMER. Metal Polish Co., 89 Winslow Ave., W. Somerville, Mass.

ARMSTRONG & Co., Kalamazoo, Mich. (see page opposite).

BRUNSWICK-Balke-Collender Co., 263 Wabash Ave., Chicago, Ill.

BUFFALO Enamel & Stain Co., 481 Ellicott Sq., Buffalo, N. Y.

BUFFALO Specialty Co. 3751-77 Ellicott St., Buffalo, N. Y.

COLE, G. W. Co., 143 Broadway, New York City.

EAGLE Mfg. Co., 383 Prospect St., Cleveland, Ohio.

GRAMLICH Chemical Co., 167 Leverett St., Detroit, Mich.

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HASSLER Co., Owen C., 1543 Milwaukee Ave., Chicago, Ill. (see page opposite).

HINDS & Coon, 126 Pearl St., Boston, Mass.

HOFFMAN, Geo. W., 551 E. Washington St., Indianapolis, Ind.

LEAVITT, Gilbert, 11 India St., Boston, Mass.

LORD Polish Co., F. T., Cambridge, Mass.

LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.

MAGIE Bros., 9-11 N. Canal St. Chicago, Ill.

MEXICAN Mfg. Co. (The), 239 S. Main St., Wichita, Kans.

NEWBERN Co., S. C., 430 Walnut St., Philadelphia, Pa.

ORIENT Mfg. Co., 141 Milk St., Boston, Mass. (see page 51).

PAUL, J. C., & Co., 59 Dearborn St., Chicago, Ill. (see page opposite).

RAIMES & Co., 50 Ferry St., N. Y. City (see page opposite).

RATH Mfg. Co., 1023 N. 3d St., Philadelphia, Pa.

SPEAR'S Sons Co., Alden, (The), 369 Atlantic Ave., Boston, Mass.

PORCELAIN (Insulators)

AMERICAN Lava Co., Chattanooga, Tenn.

BISHOP Gutta-Percha Co., 425 E. 25th St., New York City.

BRUNT Porcelain Works, G. F., E. Liverpool, O.

IMPERIAL Porcelain Works (The), Trenton, N. J.

MASSACHUSETTS Chemical Co., 170 Summer St., Boston, Mass.

PASS & Seymour, Syracuse, N. Y.

STANDARD China Works, Trenton, N. J.

STAR Porcelain Co., Trenton, N. J.

STATE Line Mfg. Co., Chattanooga, Tenn.

STEWART, D. M., Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.

SUN-LIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

PORTABLE CRANES AND HOISTS

FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.

NICHOLS, Wm. S., 253 Broadway, New York.

PUMPS (Fuel, Air)

AMERICAN Steam Pump Co., Battle Creek, Mich.

BOSTON Auto Exchange, 173 Berkeley St., Boston, Mass.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.

CLEVELAND Faucet Co. (The), Cleveland, Ohio.

REASON Automatic Air Pump Co., Pontiac, Mich.

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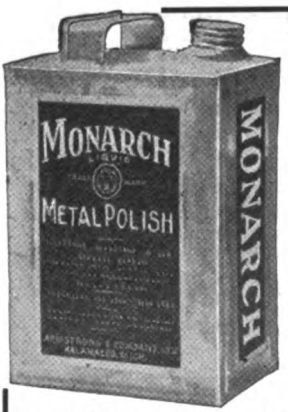

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AMERICAN Steam Pump Co., Battle Creek, Mich.
BLAKE Steam Pump Co., 356 Arborway, Jamaica Plain, Mass.
KILBURN, Edwin, Spring Valley, Minn.
NOERA Mfg. Co., Waterbury, Conn.
OFELDT Motor Works, Nyack-on-the-Hudson, N. Y.
UNION Steam Pump Co., Battle, Creek, Mich.

PUMPS (Circulating)

AMER. Mach. & Mfg. Co., 970 Hamilton Ave., Cleveland, O.
AUTO Brass & Aluminum Co., Flint, Mich.
BIEDERMAN, C., 1555 Knox St., Cincinnati, Ohio.
BRENNAN Motor Co., Syracuse, N. Y.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page opposite).
BROWN & Sharpe Mfg. Co., Providence, R. I.
BYRNE, Kingston & Co., Kokomo, Ind.
CONTINENTAL Engine Co., 277 Dearborn St., Chicago, Ill.
ESSEX Brass Co., G. B., Detroit, Mich.
GARVIN Machine Co., Spring & Varick Sts., N. Y. City.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 73).
LIPMAN, Carl E., Beloit, Wis.
LOBEE Pump & Machinery Co., 133-141 Terrace, Buffalo, N. Y. (see page 57).
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).
MILWAUKEE Motor Co., Milwaukee, Wis.
MOHLER & De Gress, Long Island City, N. Y.
N. Y. Gear Wks., Brooklyn, N. Y.
PALMER Bros., Cos Cob, Conn.
PELTON Gas. Eng. Wks., Lyons, Ia.
ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.
STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 61).
TORBENSEN Gear, Inc., Bloomfield, N. J.
UPTON Motor Co., Lebanon, Pa.
WESTERFIELD Motor Co. (The), Anderson, Ind.

PUMPS, OIL (See Oil Pumps)

PUMPS (Tire Inflators)

AUTO Pump Co., Springville, N. Y.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BONNETT, J. C., 43 Gregory St., New Haven,
BRIDGEPORT Brass Co., Bridgeport, Conn.
BRIDGEPORT Gun Implement Co., 313 B'way, N. Y. City.
BROWN-Lipe Gear Co., Syracuse, N. Y. (see page 47).
CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.
CLEVELAND Faucet Co., Cleveland, O.
CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.
COLONIAL Brass Co. (The), 316-318 Seneca St., Cleveland, O.
CRANE, Wm. N., & Co., 1131 B'way, N. Y. City.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FERODOWILL Mfg. Co., 214 W. Indiana St., St. Paul, Minn.
GARAGE Equipment Co., Milwaukee, Wis.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
GOULDS Mfg. Co. (The), Seneca Falls, N. Y.
HOLMES, Robert, & Bros., Danville, Ill.
IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 73).
JUDD & Leland, Clifton Springs, N. Y.
LEATHER & Brass Mfg. Co., Auburn, N. Y.
MACKIE-Lovejoy Mfg. Co., Chicago, Ill.
MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).
MILLER Mfg. Co., Peekskill, N. Y.
MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.
NEW Departure Mfg. Co. (The), Bristol, Conn.
NOERA Mfg. Co., Waterbury, Conn.
PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
SKINNER & Skinner, 4133 Indiana Ave., Chicago, Ill.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 41).
STEVENS & Co., 99 Chambers St., N. Y. City. (Jobbers).
TEN EYCK Mfg. Co., F. E., 24 Water St., Auburn, N. Y.
TILEY-Pratt Co. (The), Essex, Conn.
TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.
ULTRA Pump & Power Co., 122 Water St., Auburn, N. Y.
VAIL, R. E., 319 So. Main St., Mt. Vernon, O.
WIXON & Co., H. H., 3515 California Ave., Chicago, Ill. (see page 73).
WRAY Pump & Register Co., Rochester, N. Y.

PUMP CONNECTIONS (Tire Valve)

GOODRICH, B. F., Co., Akron, Ohio.
JUDD & Leland Mfg. Co., Clifton Springs, N. Y.
KELLOGG, G. W., 9 Belmont St., Rochester, N. Y.
PARK City Brass Co., Springfield, Mass.
PARKER, E. N., 293 Main St., Springfield, Mass.
STEVENS & Co., 99 Chambers St., N. Y City.
YOUSE, E. S., 46 N. 5th St., Reading, Pa.

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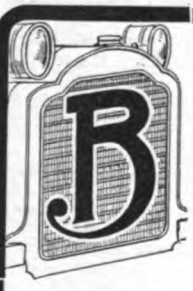

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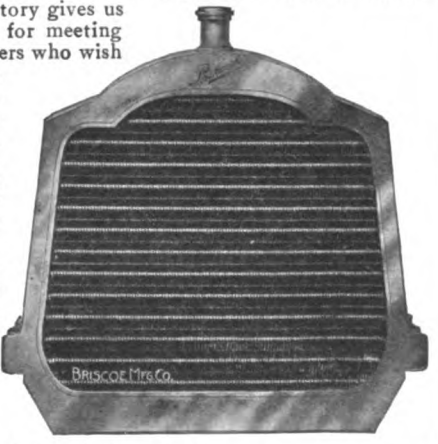

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BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
DETROIT Auto Specialty Co., Detroit, Mich. (see page 89).
DIAMOND Stamped Ware Co., Detroit, Mich.
FEDDERS Mfg. Co., Buffalo, N. Y.
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HUSSEY Drop Forge & Mfg. Co., Cleveland, O.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 39).
KINSEY Mfg. Co., Dayton, O. (see back cover).
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
MAYO Radiator Co., New Haven, Conn. (see page opposite).
STOLP Mfg. Co., Huron & Townsend Sts., Chicago, Ill. (see page 77).
WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 77).
WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

RAILS

DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich.
MURDOCK, Jas. Jr., & Co., 116 Opera Place, Cincinnati, O. (see page 93).
SMITH, Jos. N., & Co., Fourth & Porter Sts., Detroit, Mich.
RANDS Mfg. Co., Detroit, Mich.

RHEOSTATS

CUTLER-Hammer Mfg. Co. (The), Milwaukee, Wis.
MENCHEN, Jos. P., 1237 B'way, N. Y. City.
WAGNER Electrical Mfg. Co., St. Louis, Mo.

RIMS (Steel)

AMERICAN Tube & Stamping Co., Bridgeport, Conn.
BRYANT Steel Wheel & Rim Co., 454 Hayden Bank Bldg., Columbus, O.
CONTINENTAL Caoutchouc Co. (The), 43 Warren St., N. Y. City (Importers) (see page 3).
CRAMP, James, 85 Summer St., E. Boston, Mass.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
KELLY, Maus & Co., Lake St. Bridge, Chicago, Ill.
MIDGLEY Mfg. Co., Columbus, O.
STANDARD Welding Co. (The), 35 Cone St., Cleveland, O.
WESTON-Mott Co., Utica, N. Y. (see page 17).

RIMS (Wood)

DRAKE Mfg. Co., Milwaukee, Wis.
HAGERSTOWN Spoke & Bending Co., Hagerstown, Ind.
JONES & Co., Phineas, Newark, N. J. (see page 103).
K. & C. Mfg. Co., Henicker, N. H.
RASTETTER, Louis, & Son, Ft. Wayne, Ind.
TUCKER Bicycle Woodwork Co. (The), Sidney, O.

ROBES (Auto)

AMER. Buffalo Robe Co., Buffalo, N. Y.
CHASE Co., L. C., Boston, Mass. (see page 99).
CHICAGO Auto Robe Supply Co., 155-159 Market St., Chicago, Ill.
DAVIS Robe Co., Inc., 1307 Champlain Bldg., Chicago, Ill.
DRAPER Bros., Canton, Mass.
GAUSLER & Starr, Philadelphia, Pa.
MORAWETZ Co. (The), Milwaukee, Wis.
PARSONS Buggy Top Co., 135 So. Clinton St., Chicago, Ill.
PIONEER Woolen Mills, Beaufort St. and North Gratiot Ave., Detroit, Mich.
RILEY, Wm. B., & Son, 324-26 Market St., Philadelphia, Pa.
WESTERN Robe Co., Detroit, Mich.

RODS (Brass and Copper)

CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
RANDOLPH-Clowes Co., Waterbury, Conn.

RODS (Distance)

GARFORD Co. (The), Elyria, O. (see page 7).

RUBBER CLOTH

CARR, F. S., 74 Pearl St., Boston, Mass.
CHASE Co., L. C., Boston, Mass. (see page 99).
EMPIRE Rubber Mfg. Co., Trenton, N. J.
HARTFORD Rubber Works Co., Hartford, Conn.
LANDERS Bros. Co., Toledo, O. (see page 97).
MANUFACTURERS Selling Co. (The), 1777 Broadway, N. Y. City.
MASS. Chemical Co., 170 Summer St., Boston, Mass.
MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page 99).
WESTERN Rubber Co., Goshen, Ind.

RUNNING GEARS

BORBEIN & Co., H. F., St. Louis, Mo.
GARFORD Co. (The), Elyria, O. (see page 7).
MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.
NEUSTADT Auto. & Supply Co., 826 S. 18th St., St. Louis, Mo.
SMITH Co., A. O., Milwaukee, Wis.
TOWANDA Motor Vehicle Co., Towanda, Pa.
TORBENSON Gear Inc. 615 Bloomfield Ave., Bloomfield, N. J.
VEHICLE Equipment Co., B'way & 50th St., N. Y. City.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

SADDLES

BRIDGEPORT Gun Implement Co., 313 B'way, N. Y. City.
CLIMAX Mfg. Co., East Hampton, Conn.

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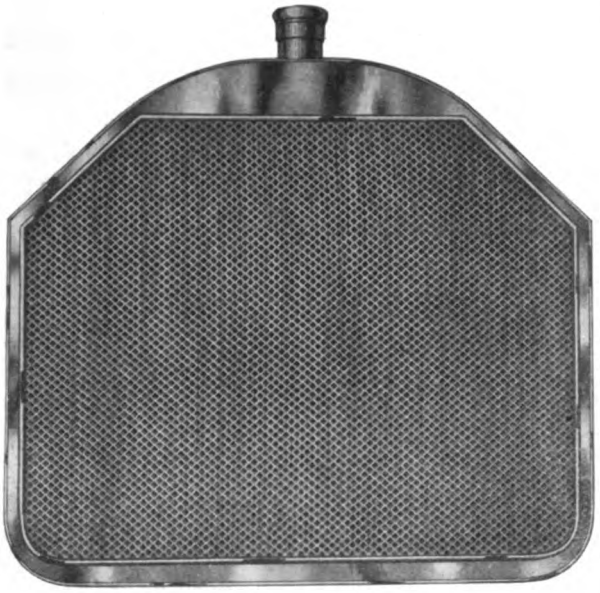
Mayo Radiators



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NEWARK Cycle Specialty Co., 26-28 Prospect St., Newark, N. J.
PERSONS Mfg. Co., Worcester, Mass.
TROXEL Mfg. Co., Elyria, O.
VIM Co. (The), 68 Lake St., Chicago, Ill.

SCREWS

ATLAS Bolt & Screw Co., Cleveland, O.
BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
DETROIT Screw Works, Detroit, Mich.
HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.
KIRK-Latty Co., Cleveland, O.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.
NATIONAL Screw & Tack Co., Cleveland, O.
NEW Britain Hdw. Mfg. Co. (The), New Britain, Conn.
PENINSULAR Milled Screw Co., Detroit, Mich.
PROGRESSIVE Mfg. Co., Torrington, Conn.
UPSON Bolt & Nut Co., Cleveland, O.
WATERBURY Mfg. Co., Waterbury, Conn.
WESTERN Automatic Machine Screw Co. (The), Elyria, O.

SCREW MACHINE PRODUCTS

CHICAGO Screw Co., Chicago, Ill.
DETROIT Screw Works, Detroit, Mich.
HARTFORD Mach. Screw Co., Hartford, Conn.
HATCHER Auto Parts Co. (The), Cleveland, O. (see cover).
ILLINOIS Screw Co., Chicago, Ill.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61).
NATIONAL Cycle Mfg. Co., Bay City, Mich.
PENINSULA Milled Screw Co., Detroit, Mich.
WORCESTER Mach. Screw Co., Worcester, Mass.

SEATS (Auto)

AMERICAN Veneer Co., Kenilworth, N. J.
AVERY Stamping Co., Cleveland, O.
BEAUDETTE & Co., J., Detroit, Mich.
CLIMAX Mfg. Co., East Hampton, Conn.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 97).
DANN Bros. Co. (The), 80-88 Franklin St., New Haven, Conn.
DAYTON Folding Tonneau Co., Dayton, O.
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
FRANTZ Body Mfg. Co. (The), Akron, O.
HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.
ITHACA Carriage Co., Ithaca, N. Y.
MICH. Auto. & Carriage Body Co., Detroit, Mich.
RATTAN Mfg. Co., New Haven, Conn.
WHIPPLE, R. W., Binghamton, N. Y.

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INDIANAPOLIS Dash Co., Indianapolis, Ind.
MESSMER, A. L. H., Indianapolis, Ind.
RANDS Mfg. Co., Detroit, Mich.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
WHIPPLE, R. W., Binghamton, N. Y.

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HUNGERFORD Brass & Copper Co., New York, N. Y.
RANDOLPH-Clowes Co., Waterbury, Conn.

SHELLS (Boiler, Steel)

JANNEY, Steinmetz & Co., Drexel Bldg., Philadelphia, Pa.
PRESSED Steel Tank Co., Milwaukee, Wis.
STANDARD Welding Co., Cleveland, O.

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AMERICAN Shock Absorber Co., Easton, Pa.
AUTO Importing Co., 124 E. Quincy St., Chicago, Ill.
BALDWIN Chain & Mfg. Co., Worcester, Mass.
CHANEY Mfg. Co., A., Terre Haute, Ind.
DETROIT Steel Products Co., Detroit, Mich.
DIEZEMANN Shock Absorber Co., 1311 Hudson St., Hoboken, N. J.
GABRIEL Horn Mfg. Co., 974 Hamilton St., Cleveland, O.
GODSHALK & Co., E. H., Philadelphia, Pa.
HARTFORD Suspension Co., 67 Vestry St., N. Y. City.
HOTCHKIN, P. M., 4018 Lake Ave., Chicago, Ill. (see page opposite).
INDIANAPOLIS Bolster Spring Co., 107 S. Meridian St., Indianapolis, Ind.
KILGORE Auto Air Cushion Co., 46 Columbus Ave., Boston, Mass. (see page 15).
SAGER Co., J. H., Rochester, N. Y.
SHEDDAN Mfg. Co., Baltimore, Md.
STACHL & Co., L. E., 262 W. 43d St., N. Y. City.
SUPPLEMENTARY Spiral Spring Co., 4528-4530 Delmar Ave., St. Louis, Mo. (see page opposite).
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.
WERNER Car Imp. Co., 110 W. 34th St., N. Y. City.

SOAPS (Special for Automobilists)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BAUM'S Castorine Co., Rome, N. Y.
CLEVELAND Oil Soap Co., 197 Lake Ave., Cleveland, O.
ERICKA Mfg. Co., Inc., Springfield, Mass. (see page 45).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill., (Dealers and Jobbers) (see page 13).
FISK Mfg. Co., Springfield, Mass.

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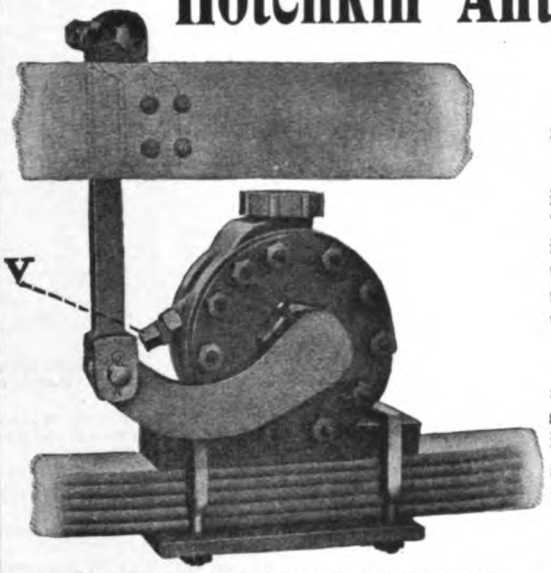
The Hotchkin Anti-Jolt Device



This illustration shows view looking along axle toward wheel from inside of machine

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Is the only eliminator made that really **eliminates** the shock.

It is a hydraulic device, and works in one direction only—on the recoil. The natural compression of the springs is not checked, but the recoil IS effectually checked, thus making the tonneau a place of comfort instead of a torture-chamber.

It prevents jolting, broken springs and **injury** to the **spines** of the **passengers.** By reducing the vibrations, it secures better traction, higher speed, greater life of tires and stronger nerves and better temper for the motorist.

This device is **readily adjustable** to all classes of vehicles at the valve V. **When adjusted it stays adjusted.**

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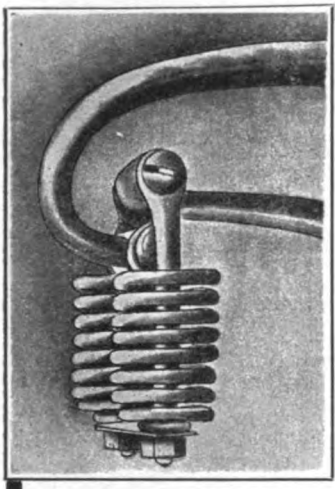

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Everywhere for their comfortable riding qualities

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Supplementary Spiral Spring Co., City: May 9, 1905.

Gentlemen—Your Supplementary Springs are giving entire satisfaction on the automobile used by myself in responding to fire calls. The most noticeable effect is that they permit my car to maintain its speed over car crossings and granite block streets with full comfort to the occupants. Yours truly, (Signed) C. E. SWINGLEY, Chief Fire Department.

E. W. SAUNDERS, M.D., 3003 Lafayette Ave., St Louis, Mo.

Supplementary Spiral Spring Co., City: Nov. 9, 1904.

Gentlemen—After a thorough test of your Supplementary Springs which were applied to my Cadillac several weeks ago, I can pronounce them an unqualified success. The riding qualities of the carriage are immeasurably better, and there has been no loss of horizontal rigidity. Very truly yours, E. W. SAUNDERS.

They absorb all Jars and Jolts **Prolong Wear of Tires**
Lengthen Life of Engine **Nothing to Break or Wear Out**

INSIST on your cars being so equipped

They adjust to any make car and add to its durability, speed and riding qualities as nothing else can. Cost price refunded if springs prove unsatisfactory after thirty days' use.

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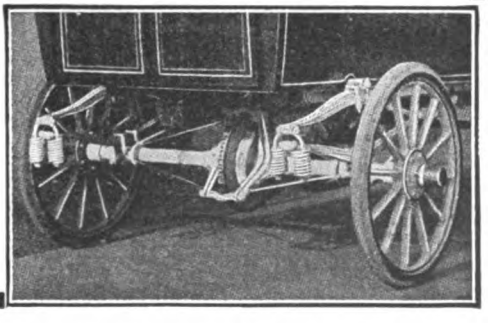

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HYDRO-Palm Mfg. Co., 22 Minott St., Neponset, Mass. (see page 57).
JERGENS Co. (The), Andrew, Cincinnati, O.
KIRK & Co., Jas. S., Chicago, Ill.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
ROME Soap Mfg. Co., Rome, N. Y.
SKAT Mfg. Co., Hartford, Conn.
STANLEY, John T., 650 W. 30th St., N. Y. City.
UTILITY Co. (The), 233 Greenwich St., N. Y. City.
WALTKE & Co., Wm., Grand and 2d St., St. Louis, Mo.

SPARK COILS

AMERICAN Coil Co., Foxboro, Mass.
AMERICAN Machine Mfg. Co., East Braintree, Mass.
AUTOCOIL Co. (The), 132 7th St., Jersey City, N. J.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BYRNE-Kingston Co., Kokomo, Ind.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 5).
DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co., Braintree, Mass.
DUPLEX Coil Co., Fond-du-Lac, Wis.
ELBRIDGE Electrical Co., Elbridge, N. Y.
ELECTRICAL Appliance Co., Cincinnati, O.
ELECTRIC Contract Co., 202 Centre St., N. Y. City.
ENGLAND, A. E., Amesbury, Mass.
EUREKA Mfg. Co., St. Paul, Minn.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FAULKNER-Mills Co., New Bedford, Mass.
FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.
FROST Mfg. Co., 210 1-2 S. High St., Columbus, O.
GEEN Electric Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
HANFORD, Geo. S., 1018 Amer. Trust Bldg., Cleveland, O.
HARDY Co., R. E., New York, N. Y.
HAWES Electric Co., 137 State St., Springfield, Mass.
HEINZE Electric Co., Lowell, Mass. (see page 39).
HERZ & Co., Elm and Marion Sts., N. Y. City.
INDUCTION Coil Co., Milwaukee, Wis. (see page opposite).
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
MANHATTAN Elec. Supply Co., N. Y. City.
NATIONAL Coil Co., 115 Madison Ave., Lansing, Mich.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 85).
NEW York Coil Co., 52-54 Park Pl., N. Y. City.
NOXON, C. Per Lee, 500 E. Water St., Syracuse, N. Y.
NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O. (see page 19).
PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page opposite).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
ROCHE, Wm., 52 Park Pl., N. Y. City.
RUBAY, Leon, 136 W. 38th St., New York (Importers).
RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.
SCHUG Electric Co. (The), Detroit, Mich.
SEIDLER-Miner Electric Co., Detroit, Mich. (see page 85).
SPLITDORF, C. F., 27 Vandewater St., New York (see page 85).
TRITT Electrical Mfg. Co., 120 W. Division St., South Bend, Ind.
U. S. Coil Co., Jersey City, N. J.
VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.
WESTERN Elec. Co., Chicago, Ill.
WILLIAMS, E. Q., 533 S. Clinton St., Syracuse, N. Y.

SPARK GAPS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
FUNKE, A. H., 83 Chambers St., N. Y. City.
HERZ & Co., Elm and Marion Sts., N. Y. City.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.

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ALBRIGHT Mfg. Co., Inc., Columbus, Ga.
AMERICAN Coil Co., Foxboro, Mass.
AMERICAN Machine Mfg. Co., East Braintree, Mass.
ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.
ATLANTIC Motor Supply & Screw Co., 48 Binford St., Boston, Mass.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTOMOBILE Supply Co., 1339 Michigan Ave., Chicago (Importers).
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BYRNE, Kingston Co., Kokomo, Ind.
CHARTER Mfg. Co., 59 Clark St., Chicago, Ill.
CANEDY, Earl, Chicago Heights, Ill.
CLARK, E. E., & Co., Canton, O.
CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.
CLIMAX Igniter Co., Amesbury, Mass.
CONSTANT Spark Plug Co. (The), 135 Oliver St., Boston, Mass.
DAYTON Electrical Mfg. Co. (The), Dayton, O.
DE LUXE Mfg. Co., Buffalo, N. Y.
DOHERTY & Fowler, Binghamton, N. Y.
DOW Portable Electric Co., Braintree, Mass
ELBRIDGE Electrical Mfg. Co., Elbridge, N. Y.
ENGLAND, A. E., Amesbury, Mass.
EUREKA Mfg. Co., St. Paul, Minn.
EXCELSIOR Spark Plug Co., Cleveland, O.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FAIRBANKS Co., Broome & Elm Sts., N. Y. City.
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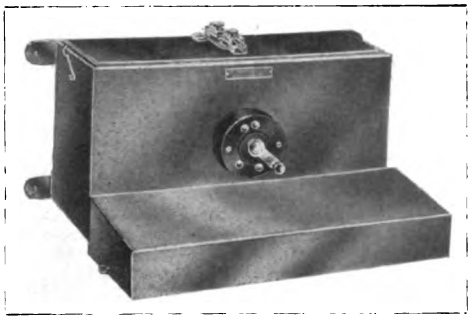

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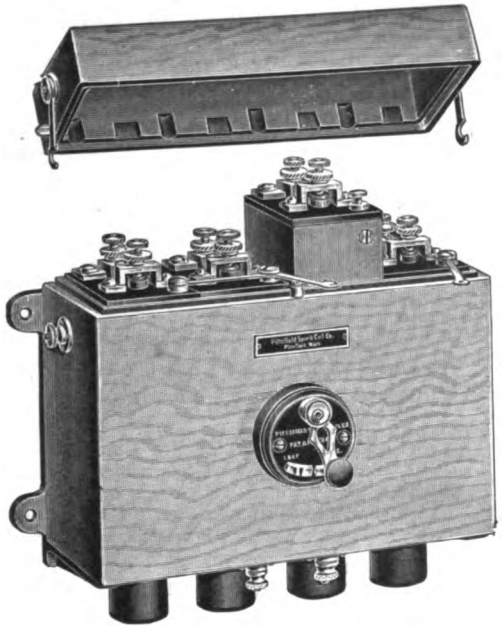
The Induction Coil Company, 106 Wisconsin St., Milwaukee, Wis.



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A little higher in price, but superior in quality; made in dash and plain boxes for one, two, three and four cylinder.

Jewel Mica Spark Plugs are known for their intrinsic value all over the United States. Higher in price than any other, but worth twice as much.

PITTSFIELD Timers and Switches are proof against short circuit and are absolutely reliable. We guarantee a sure contact under any conditions.

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GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.
HARDY Co., R. E., 225 West Broadway, N. Y. City.
HERZ & Co., Cor. Elm and Marion Sts., N. Y. City.
HOLCOMB & Co., 18 E. 28th St., N. Y. City.
ILLINOIS Roofing & Supply Co., 23 Lake St., Chicago, Ill.
INDUCTION Coil Co., Milwaukee, Wis. (see page 83).
KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.
LIPMAN, Carl E., Beloit, Wis.
McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 61)
MECHANICAL Plug Co., 3926 Olive St., St. Louis, Mo.
MEZGER, C. A., Inc., 203 W. 80th St., N. Y. City (see page 3).
MILLER Mfg. Co., Peekskill, N. Y.
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
MOSLER, A. R., Co., 1679 B'way, N. Y. City.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page opposite).
OAKES & Dow Co., 40 Sudbury St., Boston, Mass.
ORSWELL Ignition Co. (The), 102 Pearl St., Boston, Mass.
PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 83).
POPE Mfg. Co., Hartford, Conn. (see page 53).
RAJAH Auto. Supply Co., 140 Washington St., New York.
RICHARDSON Engineering Co., Hartford, Conn.
ROCHE, Wm., 52 Park Pl., N. Y. City.
RUBAY, Leon, 136 West 38th St., New York (Importer).
SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page opposite).
SPLITDORF, C. F., 27 Vandewater St., New York (see page opposite).
THURSTON Mfg. Co. (The), 356 E. 57th St., Chicago, Ill.
TRITT Electrical Mfg. Co., 114-120 W. Division St., South Bend, Ind.
U. S. Coil Co., 60 Harrison Ave., Jersey City, N. J.

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AMERICAN Platinum Wks., Newark, N. J.
BAKER & Co., 403 N. J. R. R. Ave., Newark, N. J.
BOKER & Co., Herman, 101 Duane St., N. Y. City.
CROSELMIRE, Chas. F., Co., 251 N. J. R. R. Ave., Newark, N. J.

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ALTEMUS & Co., C. L., 15th & Market Sts., Philadelphia, Pa.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTO Instrument Co., 228 No. 4th St., Phila., Pa.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BEMUS, Alton T., 294 Washington St., Boston, Mass.
BURTT Mfg. Co., Kalamazoo, Mich.
CAMBRIA Mfg. Co. (The), 41 Columbus Ave., Boston, Mass.
DAYTON Electrical Mfg. Co., Dayton, O.
DODGE Lubricator Co., 36 Columbus Ave., Boston, Mass.
DOW Portable Electric Co., Braintree, Mass.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 13).
HEINZE Electric Co., Lowell, Mass. (see page 39).
HERZ & Co., Elm and Marion Sts., N. Y. City.
ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.
MONITOR Speed Recorder Co., 274 Pearl St., Cambridge, Mass.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
POWELL Mfg. Co. (The), Clinton, N. Y.
UNCAS Specialty Co., 31 Shipping St., Norwich, Conn.
WESTERN Motor Co., Logansport, Ind.

SPEED INDICATORS (See Indicators, Speed and Distance)

SPOKES (Wire)

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
GARFORD Co. (The), Elyria, O. (see page 7).
NON-Corrosive Metal Co., 39 Pitts St., Boston, Mass.
PACKER Cycle Co., Reading, Pa.
POPE Mfg. Co., Hartford, Conn. (see page 53).
STANDARD Spoke & Nipple Co., Torrington, Conn.
TILEY-Pratt Co. (The), Essex, Conn.
TOLEDO Metal Wheel Co., Toledo, O.
WIRE Goods Co. (The), Worcester, Mass.
WOLFF, R. H., & Co., Ltd., N. Y. City.

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ANSTED Spring & Axle Co., Connersville, Ind.
ARMSTRONG Mfg. Co. (The), J. B., Flint, Mich.
CLEVELAND-Canton Spring Co., Canton, Ohio.
COOPER, Geo., & Co., Cleveland, O.
DELANEY, D., & Son, Liberty and Hamilton Sts., Newark, N. J.
DETROIT Steel Products Co., 87-89 Fort St., E., 133-141 Antoine St., Detroit, Mich.
GARDEN City Spring Works, Chicago, Ill.
HENRY Spring Co., Winsted, Conn.
HESS-Pontiac Spring and Axle Co., Pontiac, Mich.
KALAMAZOO Spring & Axle Co., Kalamazoo, Mich.
KEYSTONE Spring Wks., 13th and Buttonwood Sts., Phila., Pa.
LEE, Cowan & Bowen, Canal St. and No. Crouse Ave., Syracuse, N. Y.
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PALMER, Jos., 333 Rutherford Ave., Boston, Mass.
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Different in construction from any plug ever made. It's spark plug sense. Can't short circuit. Can't soot over. Steel cap and electrode one piece. Expansion allowed for. Cap protects the porcelain from any jar.

It's way ahead of competitors. Our 1905 was good, our 1906 is better. No advance in price. $1.50, worth double. Mica plugs, best ever, $1.50. Coils, Battery Connections, Chain Tools and Wire Terminals. Deliveries guaranteed.

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ATTENTION! AUTOMOBILE MANUFACTURERS

Why not equip your machines with the latest and best igniting devices?

The "ECONOMY SWITCH" will add a valuable talking point, as by its use it will save from 25 to 50% of the Battery Cost or a like increase in mileage run.

Guaranteed, Positive, Simple, Convenient, Ornamental

The "S-M" Spark Plug

It is the only practical soot proof plug on the market. Excels in Electrical and Flame Tests; nothing better for assured durability and reliability.

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TROY Spring Works, 394-96 Congress St., Troy, N. Y.
TUCK Mfg. Co., Brockton, Mass.
TUTHILL Spring Co., 215 W. Polk St., Chicago, Ill.

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AMERICAN Steel & Wire Co., Chicago, Ill.
CARY Spring Works, 240 W. 29th St., N. Y. City.
CLEVELAND Wire Spring Co., Cleveland, Ohio.
D'ARCY Spring Co., 115 Main St., Kalamazoo, Mich.
GIBSON Co., Wm. D., Chicago, Ill.
HEBB, George A., Newark, N. J.
JACKSON Cushion Spring Co., Water St., Jackson, Mich. (see page opposite).
LOUNSBERY & Sons, G. H., 214-216 E. 4th St., Cincinnati, O.
MILLER & Van Winkle, 18 Bridge St., Brooklyn, N. Y.
MORGAN Spring Co., Worcester, Mass.
NATIONAL Spring & Wire Co., Albion, Mich.
RAYMOND Mfg. Co., Corry, Pa.
STAPLES & Hanford, Newburg, N. Y.
THOMPSON, F. H., 36-38 Elm St., Portland, Me.
WINDSOR Spring Co. (The), Kenosha, Wis.

SPRINGS (Supplementary) (See Shock Absorbers)

SPROCKETS

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BALDWIN Chain & Mfg. Co., Worcester, Mass.
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BOSTON Gear Wks., 152 Purchase St., Boston, Mass.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
CULLMAN Wheel Co., 1024 Dunning St., Chicago, Ill. (see page opposite).
FORG, Peter, Park St., Somerville, Mass.
GARFORD Co. (The), Elyria, O. (see page 7).
GRANT Gear Wks., 6 Portland St., Boston,
HARRIS, E. T., 531 W. 15th St., Chicago, Ill.
NELSON, A., Mfg. Co., 67-69 So. Canal St., Chicago, Ill.
PARISH & Bingham Co., Hamilton St., Cleveland, O.
SPACKE Mach. Co. (The), F. W., Indianapolis, Ind. (see page 41).
SPRINGFIELD Drop Forging Co., 187 Pratt St., Buffalo, N. Y.

STAMPINGS

BAY State Stamping Co., Worcester, Mass.
CROSBY Co. (The), 185 Pratt St., Buffalo, N. Y.
DAVIS & Buxton, Worcester, Mass.
DIAMOND Stamped Ware Co., Detroit, Mich.
EATON, Cole & Burnham, 253 B'way, N. Y. City.
FORG, Peter, Park St., Somerville, Mass.
FORSYTH Mfg. Co., Buffalo, N. Y.
GLOBE Mach. & Stamping Co., Cleveland, O.
HANCOCK Inspirator Co., 85 Liberty St., N. Y. City.
JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.
KELLY & Jones Co. (The), Greensburg, Pa.
MATHEWS, H. A., Mfg. Co., Seymour, Conn.
MILWAUKEE Automatic Machine Co., Milwaukee, Wis.
PARISH & Bingham Co. (The), Hamilton, St., Cleveland, O.
PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.
SCHAEFER & Bundenberg Mfg. Co., Brooklyn, N. Y.
SENSITIVE Governor Co., 140 South Capitol Ave., Indianapolis, Ind.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIDNEY Mfg. Co., 5300 Armour Ave., Chicago, Ill.
SIMMONS, John, Co., 101 Centre St., N. Y. City.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.
STAR Brass Mfg. Co., 108 E. Dearborn St., Boston, Mass.
WATSON, H. L., Co., Erie, Pa.
WORCESTER Pressed Steel Co., Worcester, Mass.

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BALL, F. H. & F. O., Plainfield, N. J.

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AMERICAN Sheet Steel Co., 24 State St., N. Y. City.
AMER. Tube & Stamping Co., Bridgeport, Conn.
BASSETT & Presley Co., Cleveland, O.
BOKER & Co., Herman, 101 Duane St., N. Y. City.
BROOKEBANK, Mullin & Co., 409 Commerce St., Phila., Pa.
CRUCIBLE Steel Co. of America, Empire Bldg., Pittsburg, Pa.
ELIOTT-Blair Steel Co., Taylor and Mercer Sts., New Castle, Pa.
FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.
FINISHED Steel Co. (The), Youngstown, Ohio.
JONES & Laughlins Co., Pittsburg, Pa.
LUKENS Steel Co., Coatsville, Pa.
MORRIS & Bailey Steel Co., Ger. Nat'l. Bank Bldg., Pittsburg, Pa.
NASH, Geo., & Co., 224 Pearl St., N. Y. City.
PARDEE, C., Wks. (The), Perth Amboy, N. J.
REPUBLIC Iron & Steel Co., Stock Exchange Bldg., Chicago, Ill.
ROYAL Metal Steel Co., Inc., 17 Bridge St., N. Y. City.
STANDARD Gauge Steel Co., Beaver Falls, Pa.
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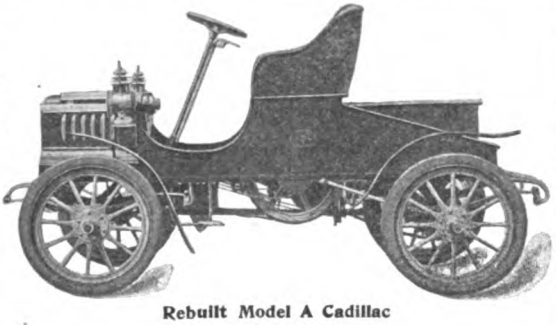

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UNION Drawn Steel Co., Beaver Falls, Pa.

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CHILDS, S. D., & Co., 200 So. Clark St., Chicago, Ill.
MURDOCK, Jr., Co., Jas., 116 Opera Pl., Cincinnati, O. (see page 93).
QUINT, S. H., & Sons, 15 S. 4th St., Philadelphia, Pa.
ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.
SMITH Mfg. Co., R. H. (The), Springfield, Mass. (see page 55).

STEEL WOOL

AMERICAN Steel Wool Co., 451-453 Greenwich St., N. Y. City.
BUEHNE Steel Wool Co. (The), 93 Nassau St., N. Y. City.

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GENERAL Electric Co., Schenectady, N. Y.
MILNE, Frank, Everett, Mass.
SMITH, E. L., 43 Columbus Ave., Boston, Mass.
WAUGH, Chas., & Co., 856-64 Main St., Cambridge, Mass.

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AMERICAN Ball Bearing Co., Cleveland, Ohio.
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
LEE & Porter, Buchanan, Mich.
MORSE, Williams & Co., West End Trust Bldg., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
VANDERBEEK Tool Wks., Hartford, Conn.

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AMER. Wood Rim Co., Bradford, Pa.
AUTO. Brass & Aluminum Co., Beach & Mill Sts., Flint, Mich.
BROWN Mach. Co., James, Pawtucket, R. I.
BYRNE, Kingston & Co., Kokomo, Ind.
CENTAUR Motor Vehicle Co., 59 Franklin St., Buffalo, N. Y.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
GARFORD Co. (The), Elyria, O. (see page 7).
GOERSS, Herman, 162 Russell Ave., Cleveland, O.
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
RASTETTER & Son, Ft. Wayne, Ind.
WARNER Gear Co., Muncie, Ind.

STEPS

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BLAKESLEE Forging Co., Plantsville, Conn.
CUSHING, J. M., Jamestown, N. Y.
DRUEN, B. D., 71 Hamilton St., New Haven, Conn.
KELSEY & Co., New Haven, Conn.
RAILWAY Appliance Co., Old Colony Bldg., Chicago, Ill. (see page 17).
RUBBER Step Co., Exeter, N. H.
SMITH, H. D., & Co., Plantsville, Conn.
STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.
WESTERN Automatic Machine Screw Co., (The), Elyria, O.
WING Co., The Chas., Amesbury, Mass.

STORM SHIELDS (See Aprons, Storm)

STRAINERS (Gasoline)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see cover).
HUSSEY Drop Forge & Mfg. Co., Cleveland, Ohio.
KAUFMANN, Chas., 45 So. Main St., Oshkosh, Wis.

STUDS—(See Screw Mach. Products)

SUPPLIES (Dealers and Jobbers)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 23).
BECKLEY-Ralston Co., Michigan Ave., Chicago, Ill. (see page 27)
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 13).
POPE Mfg. Co., Hartford, Conn. (see page 53).

SWITCHES (Electric)

AMERICAN Coil Co., Foxboro, Mass.
AUTO Lock Co., 6549 Minerva Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
B. & J. Mfg. Co., 1218 Michigan Ave., Chicago, Ill.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BYRNE, Kingston & Co., Kokomo, Ind.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 5).
DOW Portable Electric Co., Braintree, Mass.
EDWARDS & Co., New York, N. Y.
ELDREDGE Elec. Mfg. Co., Springfield, Mass. (see page 15).

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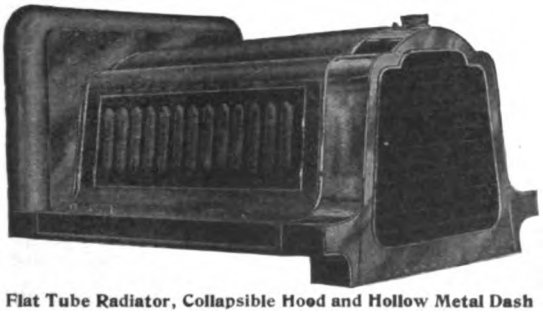

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Detroit Auto Specialty Co.

Makers of the

"DETROIT"

Hoods, Radiators, Tanks, Mufflers, Hollow Metal Dashes and other Metal Specialties

909-911 Greenwood Avenue
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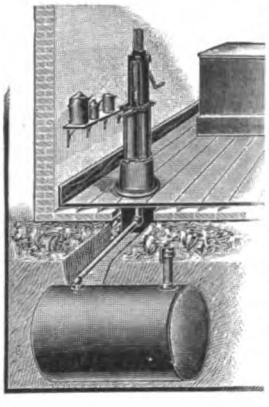
THE NATIONAL GASOLINE TANKS

The National Long Distance Gasoline Storage Outfit which permits of placing the supply tank under ground, the pump being inside the building. In perfecting this outfit we have observed to the letter the rules of the underwriters' Laboratories, and can recommend it to be the safest and most economical way of handling gasoline ever devised.



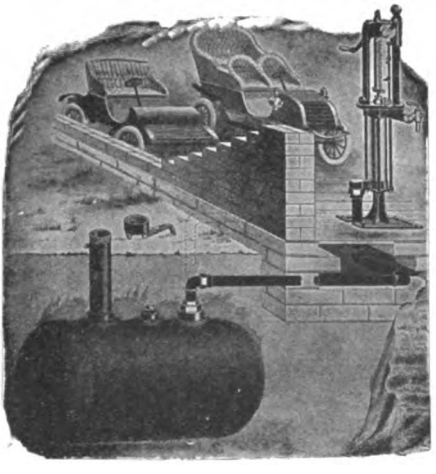
This pump is one of our latest Double Cylinder, which in operating there is no lost motion, every movement of the handle pumps and measures oil, saving time, labor and money.

This outfit is especially designed for Automobile Garages.

Ask for Catalogue

The NATIONAL TANK CO., Inc.
Dayton, Ohio

TEN BOWSER ADVANTAGES

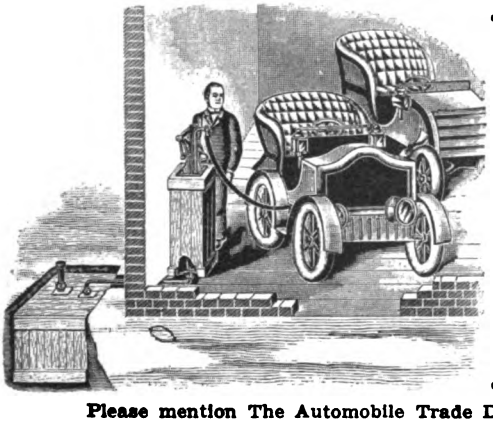


Cut 41. Long Distance, Self-Measuring. The Standard Garage Equipment for Gasolene Storage.

1. Eliminates danger. 2. Draws gasolene in one-tenth of the time ordinarily required. 3. Evaporation, leak and waste proof. 4. Keeps gasolene from deteriorating 5. Pumps and measures at the one operation. No lost time. 6. Measures gallons, half-gallons or quarts as desired. 7. Does away with the use of funnels, measures and cans. 8. An underground tank built to last a lifetime. 9. Tank buried in the most convenient place, regardless of the location of the pump 10. All metal durable pump placed inside the garage. Send for catalog J.

S. F. Bowser & Co., Inc.

Eastern Office:
255 Atlantic Ave., Boston, Mass. FORT WAYNE, IND.



Western Underground Long Distance Gasoline Storage Outfits

Especially built for use in the garage. Tank is placed underground any desired distance from the building where pump is situated, is built of heavy galvanized sheet steel encased in wood and has sheet lead bottom. This tank will last a lifetime as lead is not affected by the acids contained in gasoline and positively assures no-leakage. Pump will measure accurately any given quantity from ½ pint to ½ gallon directly into automobile reservoir by means of a hose connection. Guaranteed to be positively non-evaporative. We also make less expensive outfits for the individual owner. Send for catalog, it will pay you.

Western Oil Pump Co. 2447 Kosciusko St. ST. LOUIS, MO.

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GOEBEL, F. A., Marietta, O.
HART & Hegeman Mfg. Co., Hartford, Conn.
HERZ & Co., Elm and Marion Sts., N. Y. City.
McKIBBIN Mfg. Co., South Norwalk, Conn.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PARKER, Henry F., 127 N. Fullerton Ave., Montclair, N. J.
PEERLESS Machine Co., 126 Miami Ave., Detroit, Mich.
SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 85).
SPECIALTY Mfg. Co., South Norwalk, Conn.
SPLITDORF, C. F., 27 Vandewater St., New York (see page 85).
TRUMBULL Electric Mfg. Co., Plainville, Conn.
WESTERN Electric Co., 259 So. Clinton St., Chicago, Ill.

SWITCHES (Lock)

LOCK Switch Mfg. Co., 20 Broad St., N. Y. City.

TACHOMETERS (See Indicators, Speed and Distance)

TANKS

AVERY Stamping Co., Cleveland, O.
A-Z Co. (The), 462 11th Ave., N. Y. City.
BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BOWSER & Co., S. F., Ft. Wayne, Ind. (see page 89).
BOYD, James, 73 39th St., Brooklyn, N. Y.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
DETROIT Auto Specialty Co., Detroit, Mich. (see page 89).
DIAMOND Stamped Ware Co., Detroit, Mich.
FEDDERS Mfg. Co., Buffalo, N. Y.
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., New York, N. Y.
HAYES Mfg. Co., 773 Bellevue Ave., Detroit, Mich.
HOLMES, Robert, & Bros., Danville, Ill.
INTERNATIONAL Non-Explosive Tank Co., 140 Nassau St., New York.
IRONCLAD Mfg. Co., Brooklyn, N. Y.
JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 39).
KINSEY Mfg. Co., Dayton, O. (see cover).
KIRK-Latty Co., Cleveland, O.
MANUFACTURERS Can Co. (The), 132-36 Mulberry St., Newark, N. J.
MAYO Radiator Co., New Haven, Conn. (see page 79).
MORGAN Motor Co., 55 Furman St., Brooklyn, N. Y.
NATIONAL Tank Co., 10-16 Canal St., Dayton, O. (see page 89).
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
PRESSED Steel Tank Co., Milwaukee, Wis.
STANDARD Welding Co., 41 Cone St., Cleveland, O.
WALKER & Son, James, Detroit, Mich.
WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page 89).

TANKS (Storage)

BOWSER & Co., S. F., Ft. Wayne, Ind. (see page 89).
BROWN Oil Can Co., Dawson St., Toledo, O.
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GILBERT & Barker Mfg. Co., 82 John St., N. Y. City.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
HYDRAULIC Oil Storage & Distributing Co., Penobscot Bldg., Detroit, Mich. (see page opposite).
GORDON Tank & Pump Co., Dayton, O.
IRONCLAD Mfg. Co., 204 Varet St., Brooklyn, N. Y.
KALTENBACH, Fred, 12 N. Jefferson St., Chicago, Ill.
NATIONAL Tank CO., 10-16 Canal St. Dayton, O. (see page 89).
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
ROYER-Radford & Gordon Tank and Pump Co., Dayton, O.
STOUTENBOROUGH, X., 277 Pearl St., N. Y. City.
TOKHEIM Mfg. Co., Cedar Rapids, Iowa.
WILSON & Co., F. Cortez, Chicago, Ill.

TAPER PINS (See Screw Mach. Products)

TIRES (Cellular)

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IDEAL Auto Tire Co., Detroit, Mich.
MILWAUKEE Rubber Works Co., Cudahy, Wis.
MITCHELL Punctureless Pneumatic Tire Co., Swampscott, Mass.
RUBBER Tire Co. (The), 1215 Arch St., Phila., Pa.
VOORHEES Rubber Mfg. Co., Bostwick Ave., Jersey City, N. J.

TIRES (Leather)

CENTRAL Leather and Rubber Tire Works, 238-240 W. 50th St., N. Y. City.
LE MARQUIS Tire Co., 32 W. 33d St., N. Y. City.
SALISBURY Tire Co., Owosso, Mich.
SAMPSON Leather Tire Co., 12 W. 33d St., N. Y. City.

TIRES (Pneumatic)

AJAX Standard Rubber Co., foot of East 106th St., New York.
CONTINENTAL Caoutchouc Co., 43 Warren St., N. Y. City (see page 3).
CONTINENTAL Rubber Works, Erie, Pa.
DIAMOND Rubber Co., Akron, O.
ELECTRIC Rubber Mfg. Co., Rutherford, N. J.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
FISK Rubber Co., Chicopee Falls, Mass.

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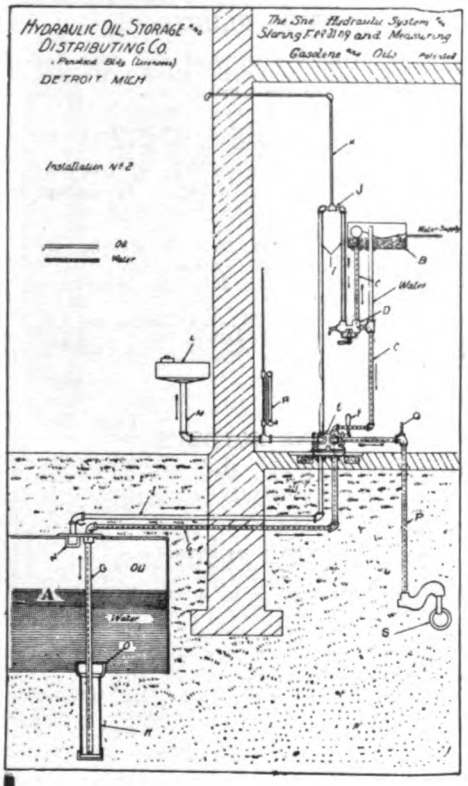
FOR THE

Snell Hydraulic System

OF

GASOLINE STORAGE

THAT IT IS IMPOSSIBLE TO EXPLODE



THE GASOLINE STORAGE TANK WITH FIRE, LIGHTNING OR ELECTRICITY, THAT THERE IS NO LOSS FROM EVAPORATION AND THAT BY SIMPLY OPENING DELIVERY VALVE YOU DRAW PURE, CLEAN GASOLINE FROM TOP OF TANK, WITH NO DIRT OR WATER IN IT.

NONE OF WHICH CLAIMS CAN BE HONESTLY MADE BY ANY OTHER SYSTEM.

Hydraulic Oil Storage & Distributing Co.

Penobscot Building, Detroit, Michigan

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GOODYEAR Tire & Rubber Co., Akron, O.
HARTFORD Rubber Wks. Co., Hartford, Conn.
INTERNATIONAL Auto. & Vehicle Tire Co., 90-92 W. B'way, N. Y. City.
KOKOMO Rubber Co., Kokomo, Ind.
MICHELIN Tire Co., 6 W. 29th St., N. Y. City.
MITCHELL Pneumatic Tire Co., Swampscott, Mass.
MORGAN & Wright, Lake and May Sts., Chicago, Ill.
PENNSYLVANIA Rubber Co., Jeannette, Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
TENNANT Auto-Tire Co. (The), Springfield, O.

TIRES (Solid)

ALDEN Rubber Co., Barberton, O.
BATAVIA Rubber Tire Co., Batavia, N. Y.
CALUMET Rubber Tire Co. (The), 43d & Wabansia Ave., Chicago, Ill.
CONSOLIDATED Rubber Tire Co., 40 Wall St., N. Y. City.
DAVIE & Co., 1310-1314 Wallace St., Phila., Pa.
DIAMOND Rubber Co., Akron, O.
EMPIRE Rubber Mfg. Co., Trenton, N. J.
FIRESTONE Tire & Rubber Co., Miller St. and Sweitzer Ave., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARRISBURG Rubber Tire Wks., Harrisburg, Pa.
HARTFORD Rubber Wks. Co., 691 Park Ave., Hartford, Conn.
INDIA Rubber & Insulated Wire Co., Jonesboro, Ind.
INDIA Rubber Co., New Brunswick, N. J.
INTERNATIONAL Auto. & Vehicle Tire Co., Milltown, N. J.
KOKOMO Rubber Co., Kokomo, Ind.
MAHONING Rubber Co., Youngstown, O.
MORGAN & Wright, Lake and May Sts., Chicago, Ill.
NEW JERSEY Car Spring & Rubber Co., Jersey City, N. J.
NEW YORK Belting & Packing Co., 25 Park Pl., N. Y. City.
ONEIDA Rubber Tire Wks., Oneida, N. Y.
PENNSYLVANIA Rubber Co., Jeannette, Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
REVERE Rubber Co., Boston, Mass.
ST. JOHN Rubber Tire Co., 116 Broad St., N. Y. City.
STEIN Double Cushion Tire Co., Akron, O.
SWINEHART Clincher Tire Co., Akron, O.
VICTOR Rubber Tire Co., Springfield, O.

TIRE ALARMS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

TIRE CASES

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BURGIN Bros., Springfield, Mass.
GILBERT Mfg. Co., New Haven, Conn. (see page opposite).
HOPEWELL Bros., 42 Osborne St., Cambridge, Mass.
NATHAN Anklet Support Co. (The), 88 Reade St., N. Y. City.
SEITZ, C., 207 E. 35th St., N. Y. City.
WILEY, Wm. H. & Son Co., Box 30, Hartford, Conn. (see page opposite).

TIRE DETACHERS

BLANCHARD, A. W., 10 Clinton St., Brooklyn, N. Y.
GOODRICH, B. F., Co., Akron, O.
HANCOCK & Heller, Water St., Binghamton, N. Y.
MAXWELL & Co., L. R., Cedar Rapids, Ia.
MORGAN & Wright, Chicago, Ill.
REMSBURG Mfg. Co., E. E., Main & Weston Aves., Springfield, O.
RHODES Mfg. Co., Grand Rapids, Mich.
UNEEDME Tire Tool Co., Columbus, O. (see page 101).

TIRE FLUID

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BIKO Mfg. Co., Hubbardson, Mass.
BUFFALO Specialty Co., 375 Ellicott St., Buffalo, N. Y.
CHICAGO Tire Filling Co., 122 S. Green St., Chicago, Ill.
LINOLE Mfg. Co., 9 Schiele Ave., San Jose, Cal.
LONGHURST, James S., 72 Nevins St., Brooklyn, N. Y.
MOORE, Geo. P., Co., 305 Van Ness Ave., San Francisco, Cal.
NEWMASTIC Tire Co., 344 Michigan Ave., Chicago, Ill. and St. Louis, Mo.
N. Y. Anti-Puncture Tire Co., 132 W. 49th St., New York.

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GILBERT Mfg. Co., New Haven, Conn. (see page opposite).

TIRE PLUGS

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COX & Spencer, Rahway, N. J.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
PNEUMATIC Tire Plug Co. (The), Danbury, Conn.
TINGLEY & Co., Chas. O., Rahway, N. J.

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CHICAGO Rawhide Mfg. Co., 75 Ohio St., Chicago, Ill.
GALLIEN, A. E., 12 W. 33d St., N. Y. City.
GILBERT Mfg. Co., New Haven, Conn. (see page opposite).
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THERE IS A BREAK IN IT—PUT A

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MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PNEUMATIC Tire Protector Co., 14-16 S. St. Clair St., Dayton, O.
POST Mfg. Co. (The), Rutherford, N. J.
WOODWORTH Bros., Newton Highlands, Mass.

TIRE REPAIR KITS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
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COLE, G. W., Co., 143 B'way, N. Y. City.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARTFORD Rubber Works Co., Hartford, Conn.
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UNION Mfg. Co., 506-508 Genesee St., Buffalo, N. Y.
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FRASSE, Peter A., & Co., 94 Fulton St., N. Y.
GOODELL-Pratt Co., Greenfield, Mass.
HAMMACHER, Schlemmer & Co., New York.
NOONAN Tool & Machine Works, Rome, N. Y.
NORTON & Jones Machine Tool Works (The), East Main St., Plainville, Conn.
PATTERSON, Gottfried & Hunter, New York.
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SMITH & Heminway, 296 Broadway, New York.
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UNIVERSAL Tool Co., 54 Taylor St., Springfield, Mass.
UTICA Drop Forge & Tool Co., 296 Broadway, New York, N. Y.
VANDERBEEK Tool Wks., Hartford, Conn.
WATERBURY Tool Co., Waterbury, Conn.

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AUTOMOBILE Buggy Top Co. of America, Noxen, Pa.
AUTO Cape Top Co., 1465 Michigan Ave., Chicago Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
AUTOMOBILE Top & Supply Co., Cleveland, O.
AUTO Top Co., of N. Y., 509 W. 30th St., N. Y. City.
BALTIMORE Buggy Top Co., Baltimore, Md.
BAUER Bros., 937 W. 8th St., Cincinnati, O.
BEEBE, A. M., 441 Elm St., New Haven, Conn.
BUOB & Scheu, 408-412 Court St., Cincinnati, O.
CARTIER, Chapman & Co., Ludington, Mich.
CENTRAL Mfg. Co., Connersville, Ind.
CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.
COLEMAN, Prouty & Root, Detroit, Mich.
COLLINS & Son, G. A., Akron, O.
COOMBS Co., Edmund H., Fort Wayne, Ind.
CORTLAND Carriage Goods Co., Cortland, N. Y.
DETROIT Carriage Co., Detroit, Mich.
DETROIT Motor Car Supply Co., 1256 Jefferson Ave., Detroit, Mich.
DICKINSON, Wm. J., 158 Duke St., Toronto, Ont., Can.
ECLIPSE Buggy Co., Fort Wayne, Ind. (see page opposite).
EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.
EMPIRE Gear & Top Co., 413 N. 22d St., Philadelphia, Pa.
EVERITT, B. F., 63-65 Fort St., E. Detroit, Mich.
FISHER, A., 302-310 Fort St. W., Detroit, Mich.
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HARRISBURG Rubber Tire Wks., Harrisburg, Pa.
HILL Manufacturing Co., 1396 West Ave., Buffalo, N. Y.
HOFFMAN Wagon Co., Jacob, Cleveland, O.
HOLMES Bros., Detroit, Mich.
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INDIANAPOLIS Dash Co., Indianapolis, Ind.
INITIAL Toe Pad Co., Three Rivers, Mich.
KIMBALL & Co., C. P., Chicago, Ill.
KING Mfg. Co., Springfield, O. (see page opposite).
KNOWLTON, C. W., Hudson, Mass.

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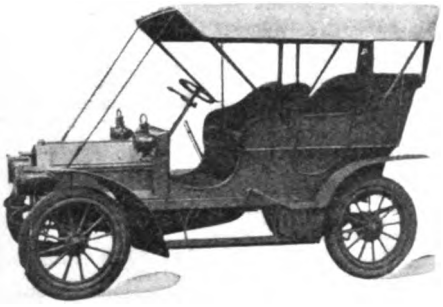

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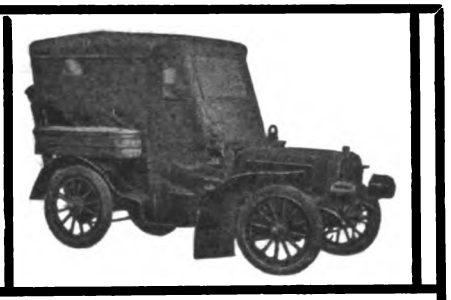

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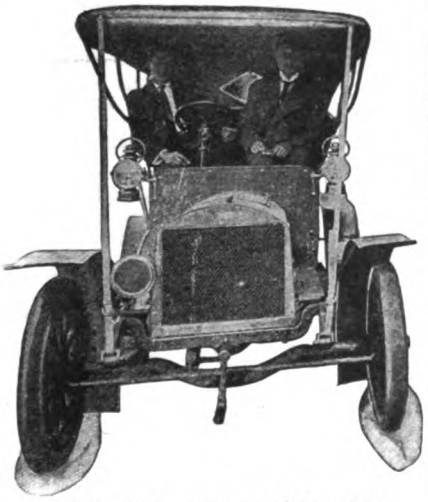
Fort Wayne, Indiana

King Automobile Tops



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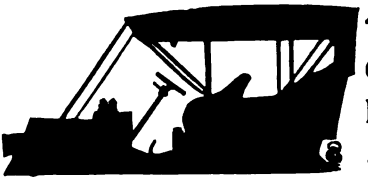
TOPS



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LONDON Auto. Supply Co. (The), 1229 Michigan Ave., Chicago, Ill. (see page 95).
LONGDIN & Brugger, Fond-du-Lac, Wis.
MECKEL, F. L., 77 E. 13th St., Chicago, Ill.
MICHIGAN Auto. Body Co., Detroit, Mich.
MICHIGAN Top Co., 17 Duffield St., Detroit, Mich.
MOORE & Munger Co., 602 West 52d St., New York.
MURRAY & Co., P. A., Newton, Mass.
MYERS Dayton Top Co. (The), Dayton, O. (see page 95).
NEWTON, W. H., & Son, 127 Elm St., Cortland, N. Y.
NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.
PARSONS Buggy Top Co., 97 So. Clinton St., Chicago, Ill.
PHILLIPS Carriage Co., Frank, Cleveland, Ohio.
QUINBY & Co., J. M., 1534 Broadway, N. Y. City.
RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.
RANDS Mfg. Co., Beaubien and Macomb Sts., Detroit, Mich.
REX Auto Top Co., 61 E. Spring St., Columbus, O. (see page 87).
RITTER Mfg. Co., 255 Jefferson Ave., Detroit, Mich.
RUSSELL, H. J., 32 Exchange St., Worcester, Mass.
SCHUBERT Bros. Gear Co., Oneida, N. Y.
SNOW & Co., N. H., Binghamton, N. Y.
SPRAGUE Umbrella Co., Norwalk, O.
SPRINGFIELD Auto. Top & Upholstering Co., 74 Harrison St., Springfield, Mass.
SPRINGFIELD Metal Body Co., Springfield, Mass.
STONE & Sons, C., 167 Ogden St., Chicago, Ill.
STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.
TROY Carriage Sunshade Co., Troy, O.
VEHICLE Apron & Hood Co., Columbus, O.
VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.
WEISS, Chas., 4725 Cottage Grove Ave., Chicago, Ill.
WELLS Mfg. Co., 622 W. Grand Ave., Des Moines, Ia.
WOOD & Sons, Fred'k R., 219 W. 19th St., N. Y. City.

TOP FIXTURES

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page opposite).

TRANSFER ORNAMENTS

MEYERCORD Co. (The), Chamber of Commerce, Chicago, Ill.
NATIONAL Decalcomania Co., Philadelphia, Pa.
PALM, Fechteler & Co., 80 5th Ave., N. Y. City.

TRIMMINGS (Cloth and Carpet)

ADAMS, Wm. F., 339 B'way, N. Y. City.
BRIDGEPORT Coach Lace Co., 805 Wood Ave., Bridgeport, Conn.
CARR, F. S., 74 Pearl St., Boston, Mass.
CRANDALL, Stone & Co., Binghamton, N. Y.
DUSENBURY, C. Coles, & Son, 396 B'way, N. Y. City.
EVERITT, B. F., 63-65 Fort St., E., Detroit, Mich.
GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.
HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.
HARDT, Von Bernuth & Co., 477 Broome St., N. Y. City.
HODGMAN Rubber Co., 806 Broadway, N. Y. City.
HORSTMAN, Wm. H., Co., 5th and Cherry Sts., Philadelphia Pa.
HUTCHINSON, W. R., & Co., 15 Caledonia Ave., Rochester, N. Y.
JACKSON Cushion Co., Jackson, Mich.
KROH, C. Z., Mfg. Co., Toledo, O.
LANDERS Bros. Co., 445 10th St., Toledo, O. (see page opposite).
MANUFACTURERS' Selling Co. (The), 1777 Broadway, N. Y. City.
MEYER, John C., & Co., 80-86 Kingston St., Boston, Mass.
MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page 99).
NATIONAL India Rubber Co., Bristol, R. I.
NEW Haven Button Co., New Haven, Conn.
RARITAN Woolen Mills, 14 White St., N. Y. City.
ROEHM & Davison, Detroit, Mich.
ROUSE, J. G., & Co., 413 Arch St., Phila., Pa.
ROY, James, & Co., 500 B'way, Watervleit, N. Y.
SCHOFIELD, Mason & Co., Fairhill and Cumberland Sts., Philadelphia, Pa.
SLATER, S., & Sons, 47 Worth St., N. Y. City.
TINGUE Mfg. Co., Seymour, Conn.
WATERLOO Woolen Mfg. Co., Waterloo, N. Y.

TRIMMINGS (Leather)

CARR, F. S., 74 Pearl St., Boston, Mass.
CRANDAL, Stone & Co., Binghamton, N. Y.
EVERITT, B. F., 63-65 Fort St., East, Detroit, Mich.
HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.
INDIANAPOLIS Buggy Top Co., 213 No. Alabama St., Indianapolis, Ind.
INITIAL Toe Pad Co., Three Rivers, Mich.
KROH, C. Z., Mfg. Co., Toledo, O.
NEWTON & Son, W. H., Cortland, N. Y.
ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.
ROUSE, J. G., & Co., 413 Arch St., Phila., Pa.
WARD, E. S., & Co., Newark, N. J.

TRIMMINGS (Metal)

AMER. Sheet & Tin Plate Co., Frick Bldg., Pittsburg, Pa.
ATWOOD Mfg. Co., Amesbury, Mass.
BARLOW Mfg. Co., Holyoke, Mass.
CLARK Novelty Co. (The), 380 W. Exchange St., Rochester, N. Y.
COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page opposite).
COWLES, C., & Co., New Haven, Conn.
CRANDALL, Stone & Co., Binghamton, N. Y.

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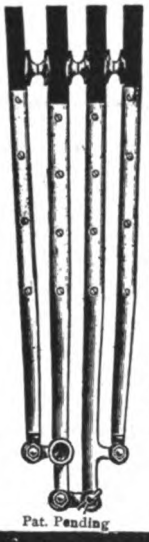

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DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 97).
ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.
LEE Mfg. Co. (The), South Park, Port Huron, Mich.
METAL Stamping Co., 468-472 B'way, N. Y. City.
MURDOCK, Jas., Jr., & Co., 116 Opera Pl., Cincinnati, O. (see page 93).
NEIDER Co., F. A. (The), Augusta, Ky. (see page 97).
ROEHM & Davison, Detroit, Mich.
SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.
SMITH, Jos. N., & Co., Fourth & Porter Sts.,
VICTOR Metals Co., 29 Broadway, N. Y. City.
WOODRUFF & Sons Co., Walter W. (The), Mount Carmel, Conn.

TUBING (Brass and Copper)

AMERICAN Tube Wks., 137 Milk St., Boston, Mass.
ANSONIA Brass & Copper Co., Ansonia, Conn.
BENEDICT & Burnham, Waterbury, Conn.
BRIDGEPORT Brass Co., Bridgeport, Conn.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 77).
CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
IVINS, Elwood Tube Works, Mill, Oak Lane Station, Philadelphia, Pa.
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
NEW Jersey Tube Co., Newark, N. J.
RANDOLPH-Clowes Co., Waterbury, Conn.
ROME Brass & Copper Co., Rome, N. Y.
SIMONS, John, Co., 104-110 Centre St., N. Y. City.
STOLP Mfg. Co., Huron & Townsend St., Chicago, Ill. (see page 77).

TUBING (Flexible)

ANGLO-American Flexible Metallic Tubing Co., New York, N. Y.
AUTOMOBILE Supply Mfg. Co., 320 Driggs Ave., Brooklyn, N. Y.
COATES Clipper Mfg. Co., Worcester, Mass.
FLOWER & Co., Walter L., St. Louis, Mo.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City.
SMITH, Albanus L. & Co., 1305 Arch St., Philadelphia, Pa. (Importer).

TUBING (Steel)

AMER. Tube & Stamping Co., Bridgeport, Conn.
DELAWARE Seamless Tube Co., Auburn, Pa.
ELWOOD, Ivins, Tube Wks., Mill, Oak Lane Station, Philadelphia, Pa.
LAMINATED Tube Co., Columbus, O.
MACKIE Steel Tube Mfg. Co. (The), Hammond, Ind.
NATIONAL Tube Co., McKeesport, Pa.
PITTSBURG Seamless Tube Co., Beaver Falls, Pa.
SEAMLESS Seeel Tube Mfg. Co. (The), 304 Union Trust Bldg., Detroit, Mich.
SHELBY Steel Tube Co., 1819 Frick Bldg., Pittsburg, Pa.
STANDARD Welding Co., 41 Cone St., Cleveland, O.

TUBE EXPANDERS

ARTHUR Co. (The), 188 Front St., N. Y. City.
CONDON, Geo. W., 267 Halsey St., Newark, N. J.
FORG, Peter, Park St., Somerville, Mass.
NOVELTY & Repair Shop (The), Milford, Ohio.
NOONAN Mach. & Tool Wks., Rome, N. Y.

TUBES (Boiler). See Pipe (Wrought Iron or Steel). Tubing (Brass or Copper) also Tubing (Steel)

TURNBUCKLES (See Screw Mach. Products)

TURN TABLES

AUTO Turntable Co., 1418 Madison Ave., Baltimore, Md.
BICYCLE Step Ladder Co. (The), 62 Randolph St., Chicago, Ill.
GIBBS-Brower Co., 150 Nassau St., N. Y. City.
LINK Belt Machinery Co., Chicago, Ill.
WEBER Cycle Co., Colorado Springs, Colo.

VALVES (Safety)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plains, Boston, Mass.
ASHTON Valve Co. (The), 271 Franklin St., Boston, Mass.
CROSBY Steam Gage & Valve Co., Boston, Mass.
LONERGAN & Co., J. E., Philadelphia, Pa.
LUNKENHEIMER Co., Cincinnati, O.
PITTSBURG Gage & Supply Co., 309 Water St., Pittsburg, Pa.
SCHAEFFER & Budenberg, 25 Bedford St., Brooklyn, N. Y.
SIMMONS Co., John, N. Y. City.
STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.
STAR Brass Mfg. Co., Boston, Mass.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

VALVES (Tire)

BOWN Machine Works, Battle Creek, Mich.
HILTON Valve Co., Middleboro, Mass.
MORGAN, B., Newport, R. I.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 53).
SCHRADER'S, A., Sons, 30-32 Rose St., N. Y.
SCHWAB, Louis, Newark, N. J.
SCOVILLE Mfg. Co., Waterbury, Conn.
STANDARD Valve Co., 163 Hawthorne Ave., Brooklyn, N. Y.

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NOLTE Brass Co., Springfield, O.
POWELL, Wm., Co. (The), 2525-2531 Spring Grove Ave., Cincinnati, O.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIMMONS, John Co., 104-110 Centre St., N. Y.
VINCENT Valve Co. (The), Sandusky, O.

VAPORIZERS

A. & J. Mfg. Co., 13 S. Canal St., Chicago, Ill.
BECKER, John, Hyde Park, Mass.
BRENNAN Mfg. Co., Syracuse, N. Y.
ECKEL, Andrew, 1080 3d Ave., Brooklyn, N. Y.
JAMES, Wm., 92 Liberty St., N. Y. City.
PELTON Gaso. Eng. Wks., Lyons, Ia.

VARNISHES

ACME White Lead & Color Wks., Detroit, Mich.
ARMITAGE & Co., John L., Newark, N. J.
BABCOCK Varnish Co., Boston, Mass.
BECKWITH, Chandler & Co., Newark, N. J.
BERRY Bros., Ltd., Detroit, Mich. (see front cover).
BILLINGS-Chapin Co., Cleveland, O.
BOSTON Varnish Co., Everett Sta., Boston, Mass.
BUFFALO Enamel & Stain Co., 70 W. Genesee St., Buffalo, N. Y.
CALMAN, Emil, 299 Pearl St., New York, N. Y.
CLEVELAND Varnish Co., Cleveland, O.
COLUMBUS Varnish Co. (The), Columbus, Ohio.
DETROIT White Lead Wks., 532 E. Milwaukee Ave., Detroit, Mich.
DEVOE, F. W., & C. T. Raynolds Co., Fulton and William Sts., N. Y. City.
Fulton and William Sts., N. Y. City.
DITZLER Paint & Color Co., 14 Baltimore Ave., West., Detroit, Mich.
FELTON, Sibley & Co., 136-140 No. 4th St., Phila., Pa.
FLOOD & Conklin Co., 136 Chestnut St., Newark, N. J.
GILLESPIE, Chas. H., & Sons, 125 Dey St., Jersey City, N. J.
GLIDDEN Varnish Co., Williamson Bldg., Cleveland, O.
HILDRETH Varnish Co., 32 B'way, N. Y.
LUCAS & Co., John, Philadelphia, Pa.
MASURY, John W., & Son, 44-50 Jay St., Brooklyn, N. Y.
MINETT Varnish Co., 129 Pearl St., N. Y. City.
MURPHY Varnish Co., Chestnut and McWhorter Sts., Newark, N. J.
NICE, Eugene E., 272-74 S. 2d St., Philadelphia, Pa.
ORIENTAL Varnish Co., 72 Midwood St., Brooklyn, N. Y.
PARROTT Varnish Co., Bridgeport, Conn.
PERRIN, Payson & Co., New York City.
PERRIN Varnish Co., 1133 Broadway, N. Y.
RUBBER Paint Co., 154-156 W. Van Buren St., Chicago, Ill.
SCHRACK, C., & Co., 152 No. 4th St., Phila., Pa.
SHERWIN-Williams Co., Cleveland, O.
SMITH, Edward, & Co., 45 B'way, N. Y.
STANDARD Varnish Co., 29 B'way, N. Y.
VALENTINE & Co., 257 Broadway, N. Y. City.
VICTORSON Varnish Co., 299 Pearl St., N. Y.
WATTS De Golyer Co. (The), 377 Illinois St., Chicago, Ill.
WESTERN Reserve Varnish Co., Marquette St., Cleveland, O.
WILLEY, C. A., Hunter's Point, New York.

VOLTMETERS (See Ammeters and Voltmeters)

VULCANIZERS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
AUTO-TIRE Vulcanizing Co., Lowell, Mass.
CORP Bros., 40 Mathewson St., Providence, R. I.
FISK Rubber Co., Chicopee Falls, Mass.
INVINCIBLE Mfg. Co., Wilmington, Ill.
MAXSON Vulcanizing Works, 115 Main St., W. Rochester, N. Y.
NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.
STITCH in Time Vulcanizer Co., 831 Kansas Ave., Topeka, Kans.

WASHERS

ARMSTRONG Cork Co., 23d St., and A. V. Ry., Pittsburg.
BOWEN Mfg. Co., Auburn, N. Y.
CLARK, A. N., & Son, Plainville, Conn.
HOFFELD, R., & Co., 61-63 Carroll St., Buffalo, N. Y.
LEATHER & Brass Mfg. Co., Auburn, N. Y.
MERRIAM, Wm. N., Taunton, Mass.
POSITIVE Lock Washer Co., 291 N. J. R. R. Ave., Newark, N. J.
SCHOONMAKER, A. O., 221 Fulton St., N. Y.
STIMPSON, E. B., & Son, 31 Spruce St., N. Y.
UPSON Bolt & Nut Co., Cleveland, O.

WASHERS (Felt)

BRAUNSDORF, Geo. W., 309 E. 43d St., N. Y. City.
N. E. BOOTH, 261 39th St., Brooklyn, N. Y. (see page 27).

WASHING MACHINERY

CONN. Supply Co., Hartford Life Ins. Bldg., Hartford, Conn.
IDEAL Carriage Washer Co., 62 Lenox St., Rochester, N. Y.
NICHOLSON Mfg. Co., H., 68 Dey St., N. Y.
RYAN & Long, 586 Oneida St., Appleton, Wis.
VEHICLE Specialty Co., 32 Union Pl., Hartford, Conn. (see page opposite).

WATER ALARMS AND COLUMNS

JARVIS Engine & Machine Works, River and Spring Sts., Lansing, Mich.
KITTS Mfg. Co., 111-115 Water St., Oswego, N. Y.
LOCKE Regulator Co., Salem, Mass.
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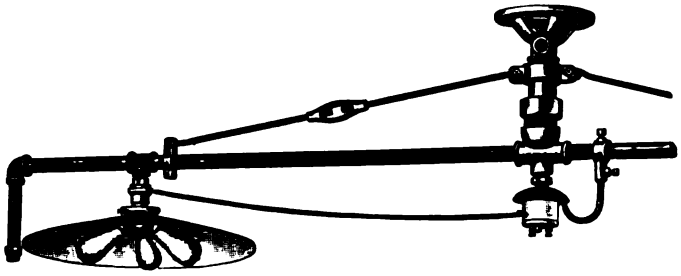

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It is a recognized fact that the genuine Clincher Tires have never been equalled for efficiency and safety. The only drawback was the one to three hours required with ordinary tools for removing and replacing tires. Of the hundred-and-one schemes devised, none have proved satisfactory but the

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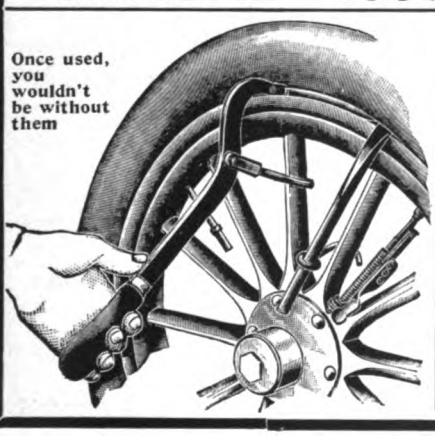

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ATWOOD Mfg. Co., Amesbury, Mass.
KNOX, The Frank J. Co., Hartford, Conn.

WELDING (Electric)

STANDARD Welding Co., Cleveland, O.

WHEELS (Comb'n, Wood and Wire)

ESTY, Wm., Laconia, N. H.,
LEE & Porter, Buchanan, Mich.
TOOMEY, C., & Co., 915 Campbell St., Kansas City, Mo.

WHEELS (Tubular Steel)

BRYANT Steel Rim & Wheel Co., Columbus, Ohio.
MIDGELY Mfg. Co., 200 W. Mound St., Columbus, O.
PARISH & Bingham Co., Cleveland, O.
TURNER & Fish, 130 So. Clinton St., Chicago, Ill.
WHITESIDE Wheel Co., 311 E. South St., Indianapolis, Ind.

WHEELS (Wire)

GARFORD Co. (The), Elyria, O. (see page 7).
JAMESVILLE Mfg. Co., Jamesville, N. Y.
LASHAWAY Wheel Co., E., Brookfield, Mass.
PRUDDEN, W. K., & Co., Lansing, Mich.
RASTETTER, Louis, & Son, Fort Wayne, Ind.
SCHACHT Mfg. Co., Cincinnati, O.
SMITH Co., A. O., Milwaukee, Wis.
WESTON-Mott Co., Utica, N. Y. (see page 17).

WHEELS (Wood)

AMERICAN Roller Bearing Co., South Framington, Mass.
ARCHIBALD Wheel Co., Lawrence, Mass.
BIDDLE & Smart Co., Amesbury, Mass.
BUCKEYE Wheel Co., Galion, O. (see page opposite).
CARR, Prescott & Co., Amesbury, Mass.
CRANE & McMahon, 18 South St., N. Y.
EAMES, A. M., & Co., So. Framingham, Mass.
EBERLY & Orris, Mechanicsburg, Pa.
FITCHBURG Wheel Co., Fitchburg, Mass.
HOOPES Bros. & Darlington, West Chester, Pa.
IMPERIAL Wheel Co., Flint, Mich.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
JONES, Phineas & Co., 301 Market St., Newark, N. J. (see page opposite).
JONES & Burt, 173 South St., Utica, N. Y.
MADISON Wheel Co., Madison, O.
MEEKER Mfg. Co., Dayton, O.
MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.
NATIONAL Wheel Co., Jackson, Mich.
NEW Haven Carriage Co., New Haven, Conn.
OLDS Wagon Wks., Fort Wayne, Ind.
PRUDDEN, W. K., & Co., Lansing, Mich.
SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page opposite).
SCHWARZ Patent Wheel Co., Philadelphia, Pa.
SELLE Gear Co. (The), Akron, O.
SHORTSVILLE Wheel Co., Shortsville, N. Y.
SMITH Co., A. O., Milwaukee, Wis.
STANDARD Wheel Co., Standard and Division Sts., Indianapolis, Ind.
STINSON, Edward, & Co., 327-335 North St., Baltimore, Md.
TIMKEN Roller Bearing Axle Co., Canton, O.
WAPAKONETA Wheel Co., Wapakoneta, O.
WESTON-Mott Co., Utica, N. Y. (see page 17).
WHEEL & Wood Bending Co. (The), 141 John St., Bridgeport, Conn.
ZWICK & Greenwald Wheel Co. (The), Dayton, O.

WHEEL TRUERS

DUDLEY, A., Mfg. Co., Menominee, Mich.
GARVIN Mach. Co., Spring & Varick Sts., N. Y.
NOONAN Mach. & Tool Wks., Rome, N. Y.
THEIM & Co., University and 38th Aves., Columbia Heights, Minn.
WAGNER Cycle Co., 41-43 West 4th St., St. Paul, Minn.

WIRE (Insulated)

AMERICAN Electrical Works, Providence, R. I.
AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
ATLANTIC Insulated Wire & Cable Co., New York.
BOURN Rubber Co., Providence, R. I.
CHICAGO Insulated Wire Co., 152 Lake St., Chicago, Ill.
EASTERN Electric Cable Co., Boston, Mass.
GENERAL Electric Co., Schenectady, N. Y.
HAZARD Mfg. Co., Wilkesbarre, Pa.
HERZ & Co., Cor. Elm and Marion Sts., N. Y. City.
INDIA Rubber & Gutta Percha Insulating Co., N. Y. City.
INDIANA Rubber & Insulater Wire Co., Jonesboro, Ind.
MILLER, Norman Bruce, 1420 Chestnut St., Phila., Pa.
NATIONAL India Rubber Co., Bristol, R. I.
NEW YORK Insulated Wire Co., N. Y. City.
OKONITE Co., 253 Broadway, N. Y. City.
PACKARD Electric Co., 412 North Ave., Warren, O.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
RUBAY, Leon, 136 W. 38th St., N. Y. City.
SAFETY Insulated Wire & Cable Co., N. Y.
SIMPLEX Electrical Co., Boston, Mass.
STANDARD Underground Cable Co., Pittsburg, Pa.

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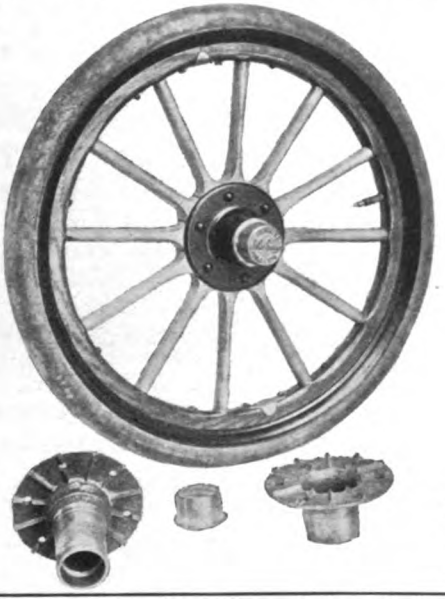

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FAHNESTOCK Electric Co., 132 Havemeyer St., Brooklyn, N. Y.
HERZ & Co., Elm & Marion Sts., N. Y. City.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 85).
NEWPORT Eng. Works, 367 Thames St., Newport, R. I.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 53).
RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.
SPLITDORF, C. F., 27 Vandewater St., N. Y. City (see page 85).

WOOD BENDINGS

AMERICAN Veneer Co., Kenilworth, N. J.
SHEPHERD & Son, H. G., New Haven, Conn.
TUCKER Wood Work Co. (The), Sidney, O.

WRENCHES

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 23).
BARNES Tool Co., 958 Grand Ave., New Haven, Conn.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 27).
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BULLARD Automatic Wrench Co., Providence, R. I. (see page opposite).
COES Wrench Co., Worcester, Mass.
DUDLY, A., Mfg. Co., Menominee, Mich.
EDMONDS-Metzel Mfg. Co., 153-159 S. Jefferson St., Chicago, Ill.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 13).
EWER, M. G., Tolsma Bldg., 45 State St., Detroit, Mich.
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HAWKEYE Wrench Co., Marshalltown, Ia.
HJORTH Wrench Co., Jamestown, N. Y.
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JENNINGS & Co., C. E., New York, N. Y.
LAMSON & Sessions, 412 Scranton Ave., Cleveland, O.
MOSSBERG, Frank, Co., Attleboro, Mass. (see page 17).
OFFSET Handle Wrench Co., 123 La Salle St., Chicago, Ill.
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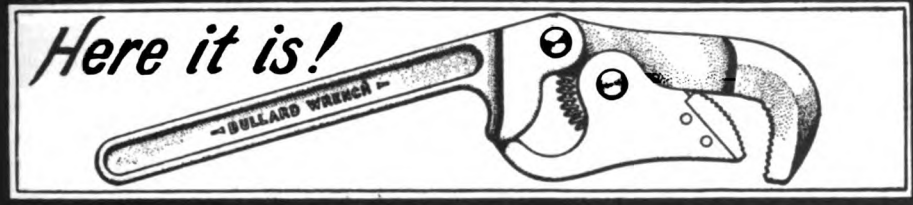

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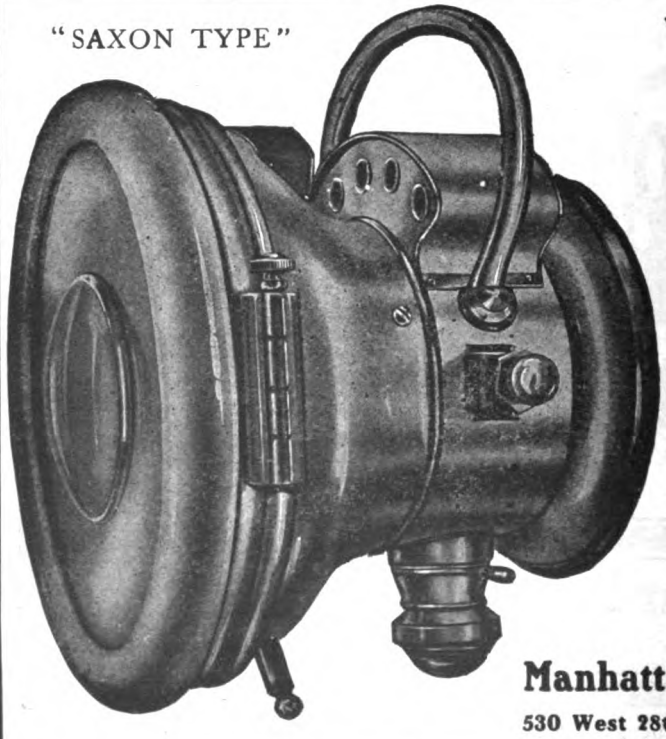

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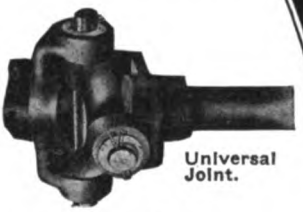
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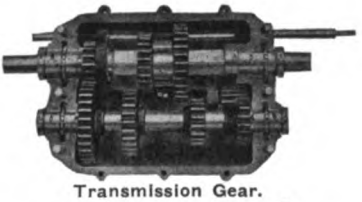
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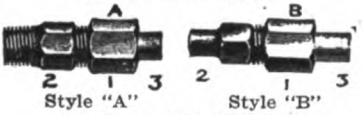

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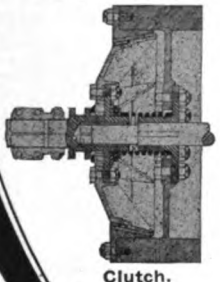
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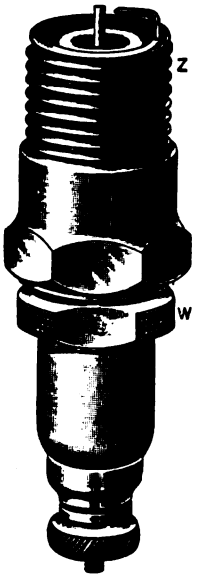

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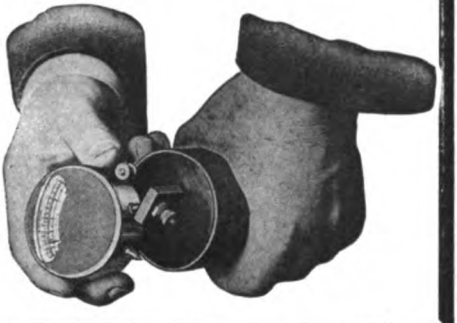

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—OF—

Automobiles, Motor Boats and the Automobile Manufacturing Industry, Including Parts and Accessories.

COMPLETE MACHINES

GASOLINE CARS

ACME Motor Car Co., Reading, Pa.

ADAMS Co. (The), Dubuque, Ia.

AEROCAR Co. (The), Detroit, Mich. (see page 11).

AMERICAN Auto Car Co., 4th and Plumb Sts., Cincinnati, O.

AMERICAN Locomotive · Automobile Co., Providence, R. I.

AMERICAN Motor Car Co., Indianapolis, Ind.

APPERSON Bros. Auto. Co., Kokomo, Ind.

ARDSLEY Motor Car Co., Yonkers, N. Y.

ARIEL Motor Car Co., Bridgeport, Conn.

AUBURN Auto Co., Auburn, Ind.

AUSTIN Auto Co., Grand Rapids, Mich.

AUTOCAR CO. (The), Ardmore, Pa.

AUTO Vehicle Co., Los Angeles, Cal.

BARTHOLOMEW Co. (The), 110 Bradley Ave., Peoria, Ill.

BERKSHIRE Automobile Co., Pittsfield, Mass.

BLOMSTROM Motor Co., C. H., 1284 River St., Detroit, Mich.

BUCKEYE Mfg. Co., Anderson, Ind.

BUFFUM Co., H. H., Abington, Mass.

BUICK Motor Co., Jackson, Mich.

CADILLAC Motor Car Co., Detroit, Mich.

CHICAGO Recording Scale Co., Waukegan, Ill.

CHRISTIE Direct Action Motor Car Co., 519 E. 18th St., N. Y. City.

CLEVELAND Motor Car Co., Cleveland, O.

COLUMBUS Buggy Co., Columbus, O.

COLUMBIA Electric Co., Indianapolis, Ind.

COMMERCIAL Motor Co., Marion, N. J.

CORBIN Motor Vehicle Corporation, New Britain, Conn.

CORWIN Mfg. Co., Peabody, Mass.

COVERT Motor Vehicle Co., Rochester, N. Y.

CRAWFORD Auto Co., Hagerstown, Md.

CROESUS Motor Car Co., 216 E. 11th St., Kansas City, Mo.

DAIMLER Mfg. Co., Long Island City, N. Y.

DAYTON & Mashey Auto Wks., 4515 Evans Ave., Chicago, Ill.

DAYTON Motor Car Co., Dayton, O. (see page 13).

DEERE-Clark Motor Car Co., Moline, Ill.

DE LUXE Motor Car Co., Toledo, O.

DETROIT Auto Mfg. Co., 259 Willis Ave., East, Detroit, Mich.

DETROIT Auto Vehicle Co., 65-71 Catherine St., Detroit, Mich.

DETROIT-Oxford Mfg. Co., Oxford, Mich.

DOLSON Automobile Co., Charlotte, Mich.

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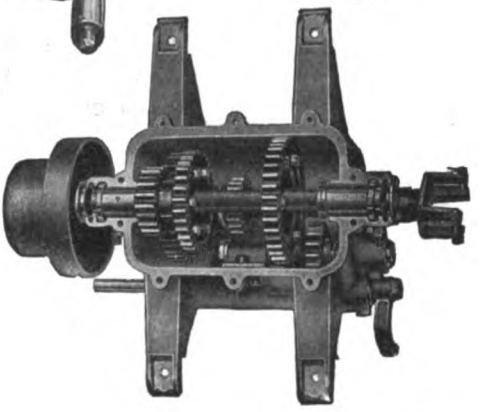

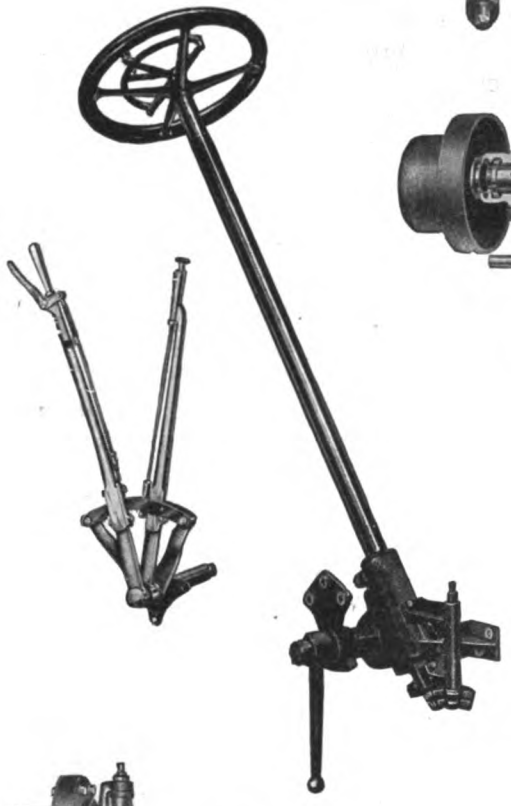

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EAGLE Automobile Co., Rahway, N. J.

EISENHUTH Horseless Vehicle Co., Middletown, Conn.

ELECTRIC Vehicle Co. (The), Hartford, Conn.

ELMORE Mfg. Co., Clyde, O.

EVANSVILLE Auto. Co., Evansville, Ind.

FAIRMOUNT Engineering Co., 3207 Spring Garden St., Philadelphia, Pa.

FORD Motor Co., Detroit, Mich.

FOREST City Motor Car Co., Massilon, O.

FRANKLIN Mfg. Co., H. H., Syracuse, N. Y.

GAETH Auto Wks., 900 Pearl St., Cleveland, Ohio.

GROUT Bros. Automobile Co., Orange, Mass.

HARRISON Wagon Co., Grand Rapids, Mich.

HAYNES Automobile Co. (The), Kokomo, Ind.

HEWITT Motor Co., 10 E. 31st St., N. Y. City.

HILL Motor Car Co., Haverhill, Mass.

HOLSMAN Auto Co., Monadnock Block, Chicago, Ill.

IROQUOIS Motor Car Co., Seneca Falls, N. Y.

IVERSON & Co., J. C., 425 Water St., Milwaukee, Wis.

JACKSON Automobile Co., Jackson, Mich.

JEFFERY, Thos. B. & Co., Kenosha, Wis.

KANSAS CITY Motor Car Co., Kansas City, Mo.

KNIGHT & Kilbourn, 1240 Michigan Ave., Chicago, Ill.

KNOX Automobile Co., Springfield, Mass.

KOBUSCH Automobile Co., St. Louis, Mo.

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LEBANON Motor Wks., Lebanon, Pa.

LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.

LOGAN Construction Co., Chillicothe, O.

LOZIER Motor Co. (The), 55th St. & Broadway, N. Y. City.

MACK Bros. Motor Car Co., Allentown, Pa.

MARION Motor Car Co., W. 15th St. and Big Four Ry., Indianapolis, Ind.

MASON Motor Car Co., 100 S. E. 5th St., Des Moines, Ia.

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MAXWELL-Briscoe Motor Co., Tarrytown, N. Y.

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MODEL Tool Co., Erie, Pa.

MOLINE Auto Co., E. Moline, Ill.

MOON Motor Car Co., St. Louis, Mo.

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MOTORCAR Co. (The), Detroit, Mich.

NAPIER Motor Car Co. of Amer., Boston, Mass.

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NORDYKE & Marmon Co., Indianapolis, Ind.

NORTHERN Mfg. Co., Canton and Champlain Sts., Detroit, Mich.

OLDS Motor Works, Lansing, Mich.

OVERLAND Automobile Co., Standard Ave. & Division St., Indianapolis, Ind.

PACKARD Motor Car Co., Detroit, Mich.

PAGE Motor Vehicle Co. (The), Providence, R. I.

PALMER Automobile Mfg. Co., Schofield Bldg., Cleveland, O.

PEERLESS Motor Car Co. (The), Lisbon St., Cleveland, O.

PIERCE Engine Co., Racine Junction, Wis.

PIERCE, The Geo. N., Co., 6-22 Hanover St., Buffalo, N. Y.

POPE Mfg. Co., Hartford, Conn. (see page 15).

POPE Mfg. Co., Hagerstown, Md.

POPE Motor Car Co., Toledo, O.

PRACTICAL Automobile Co., Genoa, Ill.

PREMIER Motor Mfg. Co., Indianapolis, Ind.

PUNGS-Finch Auto & Gas Eng. Co., Detroit, Mich.

RANIER Co., (The), Broadway & 50th St., N. Y. City.

RELIANCE Auto Co., 67-99 E. Fort St., Detroit, Mich.

REO Motor Car Co., Lansing, Mich.

ROYAL Motor Car Co., Cleveland, O. (see page 11).

ST. LOUIS Motor Car Co., Peoria, Ill. (see page 13).

SAMPSON, Alden Co., Pittsfield, Mass.

SIMPLEX Motor Car Co., Mishawaka, Ind.

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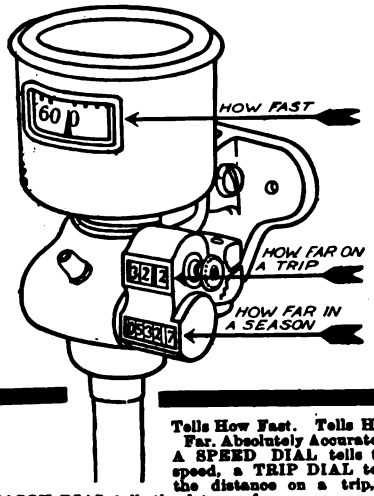

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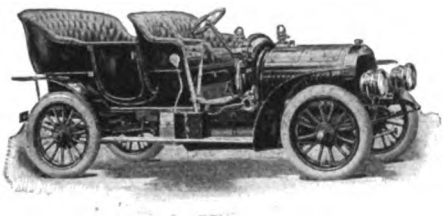

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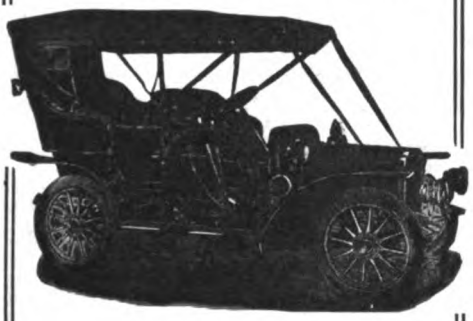

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WESTERN Tool Works, Galesburg, Ill.

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DURYEA Power Co., Reading, Pa.

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JEFFERY & Co., Thos. B., Kenosha, Wis.

KANSAS City Motor Car Co., Kansas City, Mo.

KNOX Automobile Co., Springfield, Mass.

KNOX Motor Truck Co., Springfield, Mass. (see page 35).

LOGAN Construction Co., Chillicothe, O.

MACK Bros. Motor Car Co., Allentown, Pa.

MARION Motor Car Co., Indianapolis, Ind.

MATHESON Motor Car Co., Wilkes-Barre, Pa.

MAXWELL-Briscoe Motor Co., Tarrytown, N. Y.

MEISELBACH Motor Wagon Co., North Milwaukee, Wis.

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MODEL Gas Engine Works, Auburn, Ind.

MOTORCAR Co., Detroit Mich.

OLDS Motor Works, Lansing, Mich.

PACKARD Motor Car Co., Detroit, Mich.

POPE Mfg. Co., Hartford, Conn.

PREMIER Motor Mfg. Co., Indianapolis, Ind.

RAPID Motor Vehicle Co., Pontiac, Mich.

RELIANCE Auto Co., 67 E. Fort St., Detroit, Mich.

REO Motor Car Co., Lansing, Mich.

SOULES Motor Car Co., Grand Rapids, Mich.

STEVENS Arms & Tool Co., J., Chicopee Falls, Mass.

UNION Motor Truck Co., Philadelphia, Pa.

UNITED Motor & Vehicle Co. (The), 159 Nassau St., New York.

WESTERN Tool Works, Galesburg, Ill.

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AMERICAN Electromobile Co., Penobscot Bldg., Detroit, Mich.

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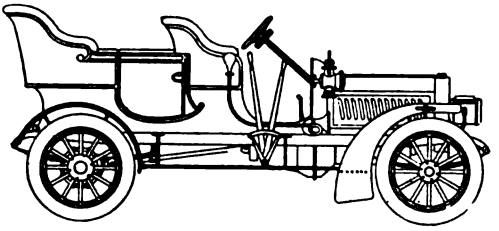
1906 **ST. LOUIS** 1906

"RIGS THAT RUN"



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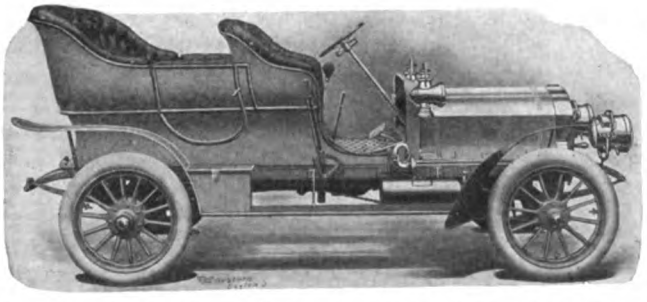
MODEL D

Stoddard-Dayton



The car that strikes the ideal medium between exorbitant frills and cheap unworthiness.

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Stoddard-Dayton Model D. 4-cylinder, vertical motor, 4½x5 cylinders, 30-35 H.P., selective type sliding gear transmission, 3 speeds and reverse, controlled by a single lever operating in a guide of the H-slot type. Operator can pass from any gear to other gear at will, up hill or down without noise or clashing. Roller bearings throughout, floating type, clutch driven rear axle with large bevel gears, mechanical lubrication. 2,100 pounds, $2,250. Advance catalog ready. Write for our new catalog fully describing the Stoddard Dayton Touring Car, Runabout and Limousine for 1906.

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ELECTRIC Vehicle Equipment Co., 20th and Montgomery Ave., Philadelphia, Pa.

GENERAL Vehicle Co., Borden and Review Aves., Long Island City, N. Y.

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LANSDEN Co. (The), Newark, N. J.

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PITTSBURG Motor Veh. Co., Pittsburg, Pa.

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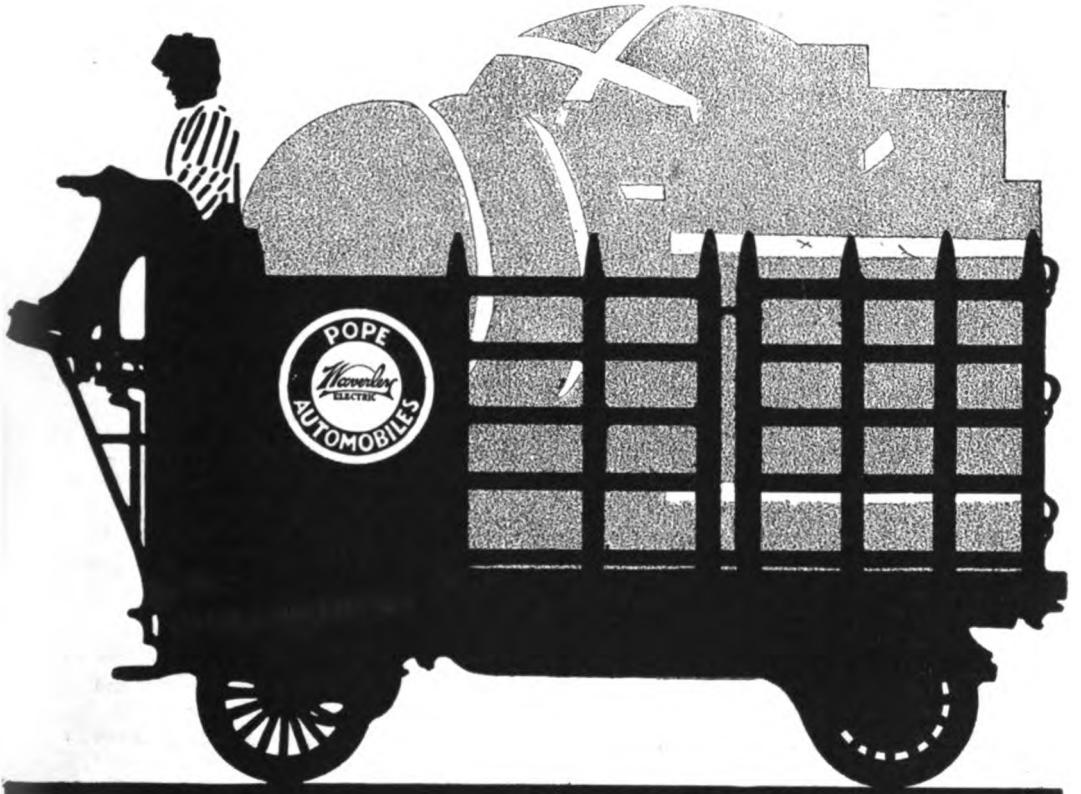

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ELECTRIC Launch Co. (The), Bayonne, N. J.

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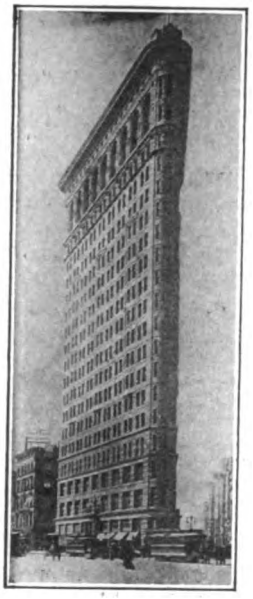

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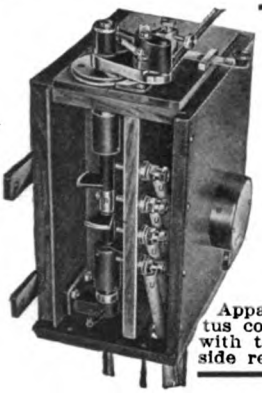

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DOW Portable Elec. Co., Braintree, Mass.

ELDREDGE Electric Mfg. Co., 227 Main St., Springfield, Mass. (see page 19).

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FORT WAYNE Electric Works, Fort Wayne, Ind.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

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GENERAL Electric Co., Schenectady, N. Y.

JEWELL Elec. Instrument Co., Chicago, Ill.

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FAIRFIELD Rubber Co., Fairfield, Conn.

GILBERT Mfg. Co., New Haven, Conn. (see page 51).

KROH, C. Z., Mfg. Co. (The), Toledo, O.

PERFECTION Storm Shield Co., Clyde, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.

VEHICLE Apron & Hood Co., Columbus, O.

VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.

WARNER Pole & Top Co., 1855 Central Ave., Cincinnati, O. (see page 119).

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GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KINSEY Mfg. Co., Dayton, O. (see page 23).

LEE & Porter, Buchanan, Mich.

MACHINERY Forging Co., Hamilton and Marquette Sts., Cleveland, O.

MUNCIE Wheel & Jobbing Co., Muncie, Ind.

REESE Mach. & Tool Works, 224 Main St., Plymouth, Pa.

SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page 127).

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.

TIMKEN Roller Bearing Axle Co., Canton, O.

WEBSTER Mfg. Co., 1075 West 15th St., Chicago, Ill.

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GARFORD Co. (The), Elyria, O. (see page 9).

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AMERICAN Ball Co., Eagle St. and Kingsley Ave., Providence, R. I.

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JONES & Co., E. J., Arlington Heights, Mass.

STANDARD Roller Bearing Co., Philadelphia, Pa.

STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 81).

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GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 111).

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CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DAYTON Electrical Mfg. Co., Dayton, O.

DOW Portable Electric Co. (The), Braintree, Mass.

EASTERN Carbon Wks., W. Bergen, Jersey City, N. J.

EDISON Mfg. Co., Orange, N. J.

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ELECTRIC Storage Battery Co., Philadelphia, Pa.

EXCELSIOR Dry Battery Co., 34 Vesey St., New York City.

FORTO Electric Co., 52 Water St., N. Y. City.

FRENCH Battery Co., Madison, Wis.

GORDON Battery Co., 439-445 E. 144th St., N. Y. City.

HUSSEY Dynamo Battery Co. (The), 39 Cortlandt St., N. Y. City.

LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.

NATIONAL Carbon Co., Cleveland, O. (see page 61).

NEW Excelsior Dry Battery Co., 32 Vesey St., N. Y. City.

NON-POLARIZING Co., 28 Broome St., New York City.

NOVELTY Electric Co., Phila., Pa.

NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O. (see page 27).

ROCHE, Wm., 52-54 Park Place, N. Y. City.

ROCK Island Battery Co., Cincinnati, O.

ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 11).

SEMI-DRY Battery Co. (The), Newark, N. J.

SWAN Elec. Co., 21 State St., New York, N. Y.

U. S. Battery Co., New Rochelle, N. Y.

WESCO Supply Co. (The), 7th St. & Clark Ave., St. Louis, Mo.

BATTERIES (Storage)

AMERICAN Battery Co., 172 South Clinton, Chicago, Ill.

BADT-Goltz Engineering Co., 1504 Monadnock Bldg., Chicago, Ill.

BATTERY Power Co., 247-253 Madison St., Milwaukee, Wis.

CHICAGO Battery Co., Michigan Ave & 14th St., Chicago, Ill.

CHICAGO Pneumatic Tool Co., Fisher Bldg., Chicago, Ill.

CLARK, A. F. & Co., 2130 W. Susquehanna Ave., Philadelphia, Pa.

COLUMBUS Storage Battery Co., Columbus, Ohio.

CROFTAN Storage Battery Co., Toronto, Canada.

DAYTON Electrical Mfg. Co., Dayton, O.

DAYTON Mfg. Co., 2240 E. 3d St., Dayton, O.

EDISON Storage Battery Co., Orange, N. J.

ELECTRIC Storage Battery Co. (The), Allegheny Ave and 19th St., Philadelphia, Pa.

ELECTRIC Vehicle & Supply Co., 4th and Prairie Sts., Milwaukee, Wis.

EMPIRE Storage Battery Co., 42 E. 23d St., N. Y. City.

EVANSVILLE Battery & Electrical Co., Evansvile, Ind.

G. & C. Dry Battery Mfg. Co., 57 W. 3d St., N. Y. City.

GOULD Storage Battery Co., 25 West 33d St., N. Y. City.

HASCHKE Compound Storage Battery Co., 89 Ashland Blvd., Chicago, Ill.

HATCH Accumulator Co., Charlestown, Boston.

HELIOS Mfg. Co., Bridesburg, Pa.

LITTLE Giant Storage Battery Co., 59 Plymouth Pl., Chicago, Ill.

LOOK Electric Co. (The), 530 Wabash Ave., Chicago, Ill.

MACRAE, Hector, 316 St. Paul St., Baltimore, Md.

MICHIGAN Storage Battery Co., 211 Jefferson Ave., Detroit, Mich.

NATIONAL Battery Co., 268-282 Mass. Ave., Buffalo, N. Y.

NEW England Motor Co. (The), 83 Fletcher St., Lowell, Mass. (see page opposite).

NORTHWESTERN Storage Battery Co., Stephenson Bldg., Milwaukee, Wis.

PERRETT Storage Battery Co., 17 State St., N. Y. City.

PILE Bloc Co., 253 B'way, New York.

ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 11).

RUBAY, Leon, 136 West 33th St., N. Y. City (Importer).

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RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.

SMITH Storage Battery Co., 198 State St., Binghamton, N. Y.

STORAGE Battery Supply Co., 239 East 27th St., N. Y. City.

TOLEDO Storage Battery & Elec. Co., 102 Ottawa St., Toledo, O.

TRAY Plate Battery Co. (The), 5 Frederick St., Binghamton, N. Y.

U. S. Battery Co. (The), New Rochelle, N. Y.

UNIVERSAL Elec. Storage Battery Co., Stock Exchange Bldg., Chicago, Ill.

VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.

WESTERN Storage Battery Co., Indianapolis, Ind.

WILLARD Storage Battery Co. (The), Cleveland, O.

WITHERBEE Igniter Co., 541 West 43d St., N. Y. City (see page 25).

BEARINGS (Ball)

AMERICAN Ball Co., Providence, R. I.

AMERICAN Ball Bearing Co., Cleveland, O.

AUBURN Ball Bearing Co., Crane Bldg., Auburn, N. Y.

BANTAM Anti-Friction Co., Bantam, Conn.

CHAPMAN Double Ball Bearing Co., Sudbury St., Boston, Mass.

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 111).

HESS-Bright Mfg. Co., 245 N. Broad St., Philadelphia, Pa.

LEE & Porter, Buchanan, Mich.

PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.

PRESSED Steel Mfg. Co., 545 The Bourse, Philadelphia, Pa.

SARTUS Ball Bearing Co., 155 Spring St., N. Y. City.

STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.

STAR Ball Bearing Axle Co., Princeton, Ill.

WORCESTER Pressed Steel Co., Worcester, Mass.

BEARINGS (Bronze)

ADVANCE Mfg. Co., Kalamazoo, Mich.

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 39).

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

BUDA Fdry. & Mfg. Co., Chicago, Ill.

CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.

CLARK, John W., Albany, N. Y.

CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.

CRAMP, Wm. & Sons, Ship & Engine Building Co., Philadelphia, Pa.

Hofeller-Brooks Brass Fdry. Co., 74-78 Fort St., E. Detroit, Mich. (see page 31).

HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.

LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 43).

NEW Era Mfg. Co. (The), Kalamazoo, Mich.

PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.

PIONEER Brass Works, Indianapolis, Ind.

PROVIDENCE Brass Fdry. & Mach. Co., Providence, R. I.

REEVES & Son, Paul S., 1415 Catharine St., Philadelphia, Pa.

SYRACUSE Aluminum & Bronze Co., 530 Leavenworth Ave., Syracuse, N. Y. (see page 41).

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

BEARINGS (Roller)

AMERICAN Roller Bearing Co., South Framingham, Mass.

BANTAM Anti-Friction Co., Bantam, Conn.

CONCORD Axle Co., 26 Crescent St., Penacook, N. H.

HUTCHINSON Mfg. Co., J., Jackson, Mich.

HYATT Roller Bearing Co., Harrison, N. J.

MOFFETT Vehicle Bearing Co., 922 S. Niagara St., Saginaw, Mich.

PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.

STANDARD Roller Bearing Co., Girard Ave. and 48th St., Phila., Pa.

TIMKEN Roller Bearing Axle Co., Canton, Ohio.

WAGNER Mfg. Co., 5-7 Prospect St., Rochester, N. Y.

BELLS

ANSONIA Electrical Co., Ansonia, Conn.

BEVIN Bros. Mfg. Co., East Hampton, Conn.

BRIDGEPORT Brass Co., Bridgeport, Conn.

COLE & Son, Rockford, Ill.

EAST Hampton Bell Co. (The), East Hampton, Conn.

EDWARDS & Co., 405 E. 144th St., N. Y. City.

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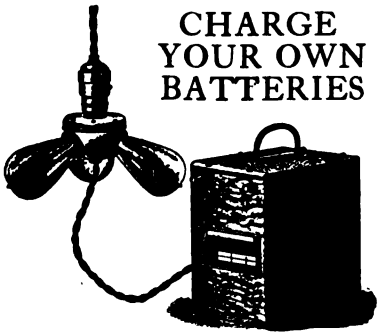

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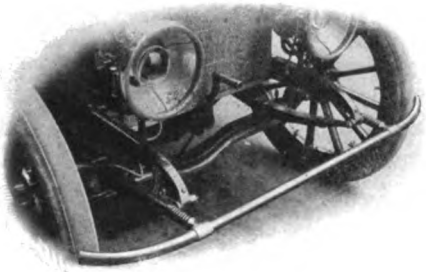

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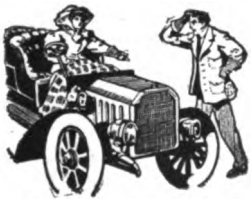

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HILL, N. N., Brass Co., East Hampton, Conn.

HOLTZER-Cabot Electric Co., Brookline, Mass.

LIBERTY Bell Co., Bristol, Conn.

MOSSBERG, Frank, Co., Attleboro, Mass. (see page 35).

NEW Departure Mfg. Co., Bristol, Conn.

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

PROCTOR-Raymond Mfg. Co., Detroit, Mich.

STARR Bros. Bell Co., East Hampton, Conn.

BODIES (Wood and Metallic)

ABRESCH Co., Charles, 398 4th St., Milwaukee, Wis.

AMERICAN Veneer Co., Kenilworth, N. J.

ARMSTRONG, M., & Co., 433 Chapel St., New Haven, Conn.

AUTO Body Co. (The), Franklin Ave., Lansing, Mich.

AUTO Body & Finishing Co., Amesbury, Mass.

BARNDT-Johnston Auto Supply Co. (The), Columbus, O. (see page 121).

BIDDLE and Smart Co., Amesbury, Mass.

BORBEIN, H. F., & Co., St. Louis, Mo.

BORCHERS Tonneau Mfg. Co., Dayton, O.

BRIDGEPORT Vehicle Co., Bridgeport, Conn.

BRIGGS Carriage Co., Amesbury, Mass.

BUCKEYE Carriage Body Co., Bellefontaine, Ohio.

BUOB & Scheu, 408 E. Court St., Cincinnati, Ohio.

CARLISLE Body & Gear Wks., Carlisle, Pa.

CARRIAGE Woodstock Co., Owensboro, Ky.

CARTIER, Chapman & Co., Ludington, Mich.

CENTRAL Mfg. Co., Connersville, Ind.

CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.

CRAWFORD, G. W. & H. D., Delhi, N. Y.

CURRIER-Cameron Co. (The), Amesbury, Mass.

DANN Bros. & Co. (The), 80-88 Franklin St., New Haven, Conn.

DEMOREST, A. L., New Haven, Conn.

DETROIT Carriage Co., Detroit, Mich.

ECLIPSE Buggy Co., East Wayne, Ind. (see page 119).

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

FRANTZ Body Mfg. Co. (The), Akron, O.

GOOLD, James Co., Albany, N. Y.

GRAVES & Congdon Co., Amesbury, Mass.

HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.

HOLCOMB, H. C., 105 Goffe St., New Haven, Conn.

HORTON, H. A., 127-131 Park St., New Haven, Conn.

HOWARTH & Rogers, Amesbury, Mass.

JACKSON Body Co., Jackson, Mich.

KEYSTONE Wagon Wks., Reading, Pa.

KILLAM, Henry, Chestnut & Wooster Sts., New Haven, Conn.

KIMBALL & Co., C. P., 315 Michigan Ave., Chicago, Ill.

KIMBARK, S. D., 80-84 Michigan Ave., Chicago, Ill.

KOEN, James R., 1257 Niagara St., Buffalo, N. Y.

KUNDTZ, Theo., Cleveland, O.

LANE, T. W., Amesbury, Mass.

LAPORTE Carriage Co., Laporte, Ind.

LAWRENCE & Co., L., Newark, N. J.

LEITCH Mfg. Co., Amesbury, Mass.

LIMOUSINE and Carriage Mfg. Co., Chicago, Ill.

LOCKE & Co., 218 W. 84th St., N. Y. City.

MICHIGAN Automobile Body Co. (The), 1425-41 Gratiot Ave., Detroit, Mich.

MIDDLETOWN Auto Body Co., Middletown Conn.

MILLER, A. J., Bellefontaine, O.

MILLER Bros., Amesbury, Mass.

MINOGUE Body & Seat Co., Kansas City, Mo.

MOORE & Munger Co., 602 W. 52d St., New York.

NEW Haven Carriage Co., New Haven, Conn.

NEWTON, W. H., & Son, 127 Elm St., Cortlandt, N. Y.

NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.

OHIO Scroll & Lumber Co., Covington, Wy.

OHIO Carriage Body Co., Bellfontaine, O.

PEEZ & Hoffman, 3d St., near Fowler, Milwaukee, Wis.

PETZELT & Keyser, 24th & Locust Sts., Philadelphia, Pa.

PITTSBURGH Reduction Co., Pittsburgh, Pa.

PONTIAC Body Co., Pontiac, Mich.

QUINBY, J. M., & Co., 1534 Broadway, N. Y. City. Factory, Newark, N. J.

QUINSLER & Co., 26-30 Cambria St., Boston, Mass.

RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.

READING Metal Body Co., Reading, Pa.

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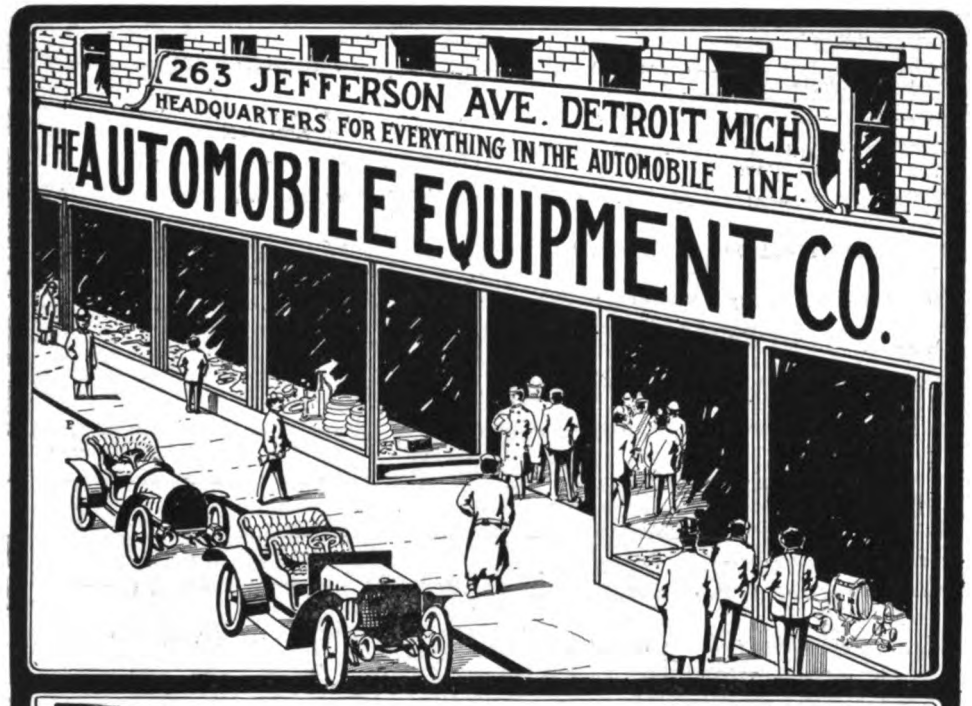

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SEABROOK & Smith Carriage Co., 126 Park St., New Haven, Conn.

SHIELDS Carriage Co. (The), Amesbury, Mass.

SPRINGFIELD Metal Body Co., Springfield, Mass.

STEWART, W. F. Body Co., Flint, Mich.

STONE & Sons, C., 167-177 Ogden Ave., Chicago, Ill.

STRATTON Carriage Body Co., Muncie, Ind.

STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.

TERRE Haute Carriage & Body Co., Terre Haute, Ind.

UNION Buggy Co., Pontiac, Mich.

WILCOX, M. E., Providence, R. I.

WILLOUGHBY Co., 86 Genesee St., Utica, N. Y.

WILSON, C. R., Body Co., Detroit, Mich.

WOGAMAN, J. Webster, Union City, Ind.

WOOD, A. M., 51 Beverly St., Boston, Mass.

WRIGHT Carriage Body Co., Moline, Ill.

YORK Wagon & Gear Co., York, Pa.

BODY (Finishing)

WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 119).

BODY REBUILDING

AUTO-Rebuilding Co., 4105 Cottage Grove Ave., Chicago, Ill. (see page 87).

BOILERS

AMERICAN Boiler Co., 85 N. Kedzie Ave., Chicago, Ill.

BIGELOW Co. (The), New Haven, Conn.

FORG, Peter, Park St., Somerville, Mass.

FRANTZ Auto Co., Cherryville, Pa.

GENEVA Auto. Mfg. Co., Geneva, O.

HOLMES, J., & Co., 518 Broad St., Newark, N. J.

KILBURN, Edwin, Spring Valley, Minn.

KNAPP Mfg. Co., 2529 Polk St., N. E., Minneapolis, Minn.

LOCKE Regulator Co., Salem, Mass.

MILNE, Frank, Everett, Mass.

OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.

ROCHESTER Machine Tool Wks., Rochester, N. Y.

SCHAFFER Machine Mfg. Co. (The), 211 N. Calvert St., Baltimore, Md.

STEAM Carriage Boiler Co., Oswego, N. Y.

THROOP Perforating Co., 80 Terrace, Buffalo, N. Y.

TONKIN Boiler Co., Oswego, N. Y.

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CLARK Bros. & Co., Milldale, Conn.

COLUMBIA Lock Nut Co., Bridgeport, Ct.

COLUMBIA Nut & Bolt Co., 25 Broad St., N. Y. City.

COLUMBUS Bolt Wks., 162 W. Randolph St., Columbus, O.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

DETROIT Screw Works, Detroit, Mich.

FRANKLIN Moore Co., Winsted, Conn.

HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.

KIRK-Latty Co., Cleveland, O.

LAMSON & Sessions Co., 412-453 Scranton Ave., Cleveland, O.

NATIONAL Screw and Tack Co., Cleveland, Ohio.

PENINSULAR Milled Screw Co., Detroit, Mich.

PROGRESSIVE Mfg. Co., Torrington, Conn.

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BROWN & Co., S. N., Dayton, Ohio.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

CRANDALL, Stone & Co., Binghamton, N. Y.

TOPLIFF, L. N., Mfg. Co. (The), Cleveland, O.

BOXES (Coil Spark)

KUNDTZ, Theo., Cleveland, O.

MURRAY, W. F., 28 Beach St., Boston, Mass.

F. M. WEST Box Co., Springfield, Mass.

BRAKES

DUCK Brake Co., 335 Broadway, N. Y. City.

FRASER, Wm., Cedar St., Dobbs Ferry, N. Y.

GARAGE Equipment Co., 10 31st St., Milwaukee, Wis.

GARFORD Co. (The), Elyria, O. (see page 9).

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

GOULD, James, Co., Albany, N. Y.

KALISCH Air Brake Co., 1317 Chestnut St., St. Louis, Mo.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

MALTBY Automobile & Mfg. Co., Brooklyn, N. Y.

N. J. Automobile Co., 226-230 Halsey St., Newark, N. J.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

READING Automobile Co., Reading, Pa.

ROYAL Equipment Co., 165 Housatonic St., Bridgeport, Conn.

SMITH CO., A. O., Milwaukee, Wis.

TIVY Cycle Co., Williamsport, Pa.

U. S. Aluminum Castings Co. (The), Hamilton and Vandalia Aves., Cincinnati, O.

WHIPPLE, R. W., Binghamton, N. Y.

YOUSE, E. S., Reading, Pa.

BRAKE BANDS

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 39).

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

ROSSENDALE-Reddeway Belting & Hose Co., Newark, N. J.

BRAKE DRUMS

CROSBY Co. (The), Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

WORCESTER Pressed Steel Co., Worcester, Mass.

BRAKE LOCKS

GARAGE Equipment Co., Milwaukee, Wis.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

READING Automobile Co. (The), 6 S. 5th St., Reading, Pa.

TURNER Brass Co., Franklin & Michigan Sts., Chicago, Ill.

BRASS AND COPPER (Sheet and Rod)

ANSONIA Brass & Copper Co., New York, N. Y.

BRIDGEPORT Brass Co., New York, N. Y.

BROOKLYN Brass & Copper Co., Brooklyn, N. Y.

COE Brass Mfg. Co., Torrington, Conn.

DETROIT Copper & Brass Rolling Mills, Detroit, Mich.

HENDRICKS BROS., New York, N. Y.

HOLMES, Booth & Haydens Co., Waterbury, Conn.

HUSSEY & Co., C. G., Pittsburg, Pa.

MANHATTAN Brass Co., New York, N. Y.

NEW HAVEN Copper Co., Seymour, Conn.

PLUME & Atwood Mfg. Co., Waterbury, Ct.

RANDOLPH-Clowes Co., Romé, N. Y.

ROME Brass & Copper Co., Rome, N. Y.

SCOVILL Mfg. Co., Waterbury, Conn.

SEYMOUR Mfg. Co., Seymour, Conn.

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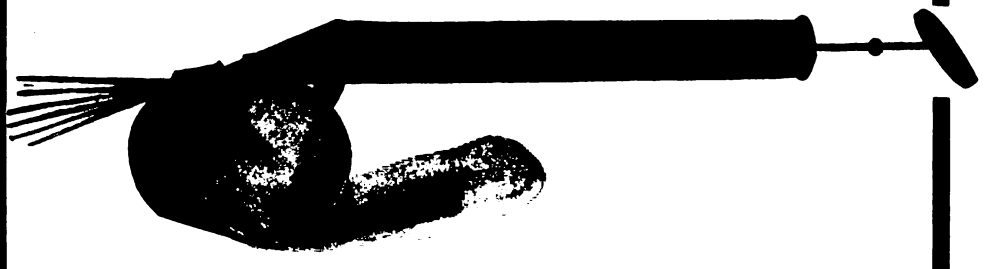

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A-Z Co. (The), 462 11th Ave., N. Y. City.

BUFFALO Dental Mfg. Co., 587-589 Main St., Buffalo, N. Y.

CLAYTON & Lambert Mfg. Co., Detroit, Mich.

ENTERPRISE Machine Works, 308 N. 5th St., Richmond, Va.

INVINCIBLE Mfg. Co., Wilmington, Ill.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page opposite).

NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.

REECE, J. A., 716 A St., N. W., Washington, D. C.

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

WHITE Mfg. Co., 72 So. Canal St., Chicago, Ill.

BRAZING COMPOUND

A. & J. Mfg. Co., 26 W. Randolph St., Chicago, Ill.

CORTLAND Specialty Co., 176 Railroad St., Cortland, N. Y.

DINGEE, M. H. Lynchburg, Va.

DIXON, Jos., Crucible Co., Jersey City, N. J.

FRANKLIN Moore Co., Winsted, Conn.

KREMBS & Co., 55 Waldo Pl., Chicago, Ill.

NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.

STANDARD Brazing Co., 88 Broad St., Boston, Mass.

WATERBURY Brass Co., Waterbury, Conn.

BRUSHES (Carbon)

NATIONAL Carbon Co., Cleveland, O. (see page 61).

BUCKETS (Collapsible)

ABERCROMBIE & Fitch, 316 B'way, N. Y. City.

BOYLE & Co., John, 112-114 Duane St., New York City.

DUPLEX Folding Pail Co., 114 East 14th St., New York City.

GOODRICH, B. F. Co., Akron, O.

GOODYEAR Rubber Co., New York, N. Y.

GUTTA Percha and Rubber Mfg. Co., New York, N. Y.

HODGMAN Rubber Co., New York, N. Y.

KNOWLES, C. S., 7 Arch St., Boston, Mass.

RUBBER Appliance Co., Springfield, Mass.

RUE Mfg. Co., 215 Race St., Philadelphia, Pa.

WATERBURY Brass Co., Waterbury, Conn.

BUFFING MACHINES

COATES Clipper Co., Worcester, Mass.

BUMPERS

CALUMET Tire & Rubber Co., 43d and Wabonsia Aves., Chicago, Ill.

HARROUN, R. W., 1329 Michigan Ave., Chicago, Ill. (see page 27).

HARTFORD Rubber Wks. Co., Hartford, Conn.

BURNERS (Gasoline)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FORG, Peter, Park St., Somerville, Mass.

LOCKE Regulator Co., Salem, Mass.

NATIONAL Oil Burner & Equipment Co., St. Louis, Mo.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

TONKIN Boiler Co., Oswego, N. Y.

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Kerosene)

AMERICAN Burner Co., 81 No. Kedzie Ave., Chicago, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BARRETT, Geo. J., 143 Queen St., Fredericton, N. B.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

CHICAGO Auto. Mfg. Co., 4120 State St., Chicago, Ill.

FRANTZ Mfg. Co., Cherryville, Pa.

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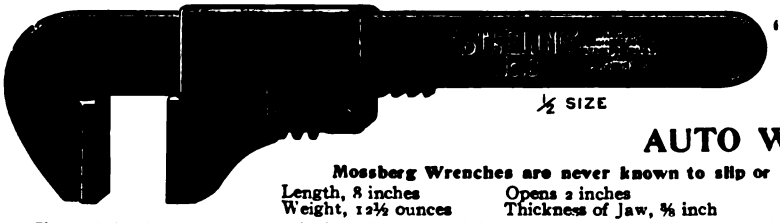

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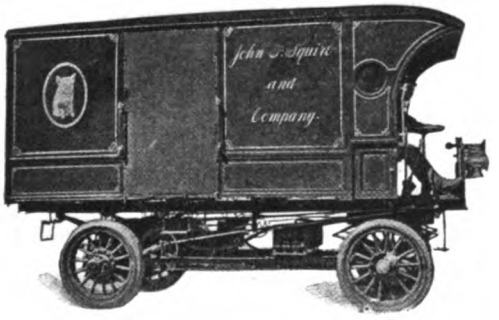

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NATIONAL Oil Burner & Equipment Co., St. Louis, Mo.

NATIONAL Oil Heating Co., Waltham, Mass.

NOVELTY Appliance Co., 369 Broadway, New York, N. Y.

OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.

STEAM Carriage Boiler Co., 119 West First St., Oswego, N. Y.

TAUNTON Motor Carriage Co., Taunton, Mass.

TONKIN Boiler Co., Oswego, N. Y.

WALKER Co., E. C., 1913-1923 Logan St., Louisville, Ky.

BURNERS (Gas Lamp)

ACETYLENE Gas Ill. Co., 105 Walker St., New York, N. Y.

AMERICAN Lava Co., Chattanooga, Tenn.

CARROLL, J. B., 136 Lake St., Chicago, Ill.

CRANE Co., W. N., 1131-1133 Broadway, N. Y. City.

KIRCHBERGER & Co., 50 Warren St., New York City.

STAR Acetylene Gas Burner Co., Chattanooga, Tenn.

STATE Line Talc. Co., Chattanooga, Tenn.

STEWART, D. M. Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.

CANOPIES (See Tops)

CANS (See Oil Cans)

CANS (Waste)

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 101).

DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

CAPS (Auto)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

DEMMERLE & Co., 248 W. 23d St., New York City.

DETROIT Cap Mfg. Co., 11-17 Woodbridge St., W., Detroit, Mich.

DETROIT Motor Car Supply Co., 1256 Jefferson Ave., Detroit, Mich.

DINNER, Isaac H. Co., 48-50 Summer St., Boston, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

KIBBE, C. S., Batavia, N. Y.

LASKY & Levy, 20 and 22 Waverly Place, New York City.

LILLEY Co., M. C., Columbus, O.

MAXFIELD & Co., Glen C., 170 E. Madison St., Chicago, Ill.

MORAWETZ Co. (The), Milwaukee, Wis.

PONTIAC Knitting Co., Pontiac, Mich.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

REVILLON Bros., 15 W. 28th St., New York City.

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SCANDINAVIAN Fur & Leather Co., New York, N. Y.

SHAW, Ora D., 109 Kingston St., Boston, Mass.

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WANCKEL, Manfred, 640 Madison Ave., New York City.

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ACETYLENE Gas Ill. Co., 105 Walker St., New York.

AMERICAN Carbolite Co., Constantine, Mich.

UNION Carbide Co., Michigan Ave. and Adams St., Chicago, Ill.

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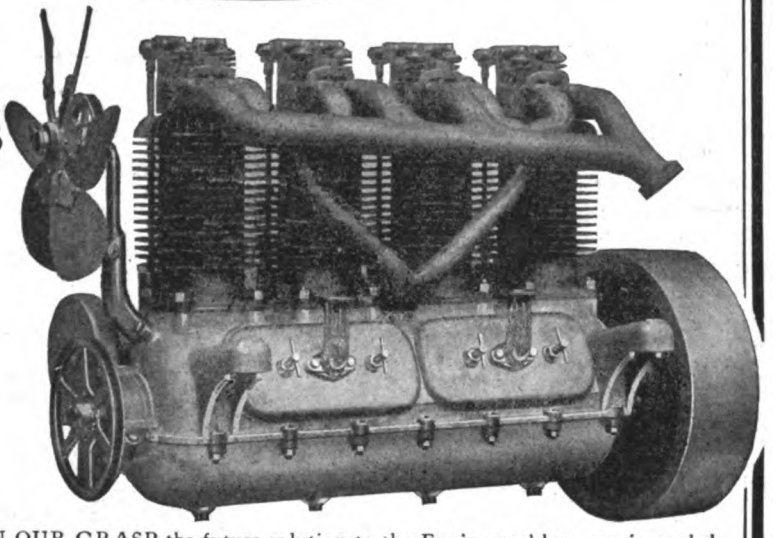

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BROOKLYN Coil & Carbureter Co., 77-79 Adams St., Brooklyn, N. Y.

BUCKEYE Motor Co., 201 South High St., Columbus, O.

BUFFALO Carbureter Co., 889 Main St., Buffalo, N. Y.

BYRNE, Kingston & Co., Kokomo, Ind.

CAMDEN Anchor-Rockland Co., Rockland, Me.

CLEMICK-Hirsch Co., Milwaukee, Wis.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

CULVER Novelty Co., Culver, Ind.

DEARBORN, F. A., Old South Bldg., Boston, Mass.

ESSEX Brass Co., G. B., Detroit, Mich.

FAST, Otto, Greenfield and 25th Aves., Milwaukee, Wis.

GAITHER-Owen Co., 40 W. 60th St., N. Y. City.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

GODDU Bros., Winchester, Mass.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

HEATH Co. (The), Saratoga Springs, N. Y.

HOLLEY Bros., 661-673 Beaubein St., Detroit, Mich.

ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.

IMPERIAL Brass Mfg. Co., 257 So. Jefferson St., Chicago, Ill. (see page 71).

JOHNSTON Mach. Co., 86 High St., Woodbury, N. J.

KAESTNER Mfg. Co., Chas., South Bend, Ind.

KAUFMAN, Chas., Oshkosh, Wis.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

LAKEVIEW Auto. Co., 1045 Sheffield Ave., Chicago, Ill.

LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.

LEE Mfg. Co. (The), South Park, Port Huron, Mich.

LIPMAN, Carl E., Beloit, Wis.

LOCKE Regulator Co., Salem, Mass.

LOOMIS Autocar Co., Westfield, Mass.

LUNKENHEIMER Co. (The), 213-223 E. 8th St., Cincinnati, O.

LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.

MASSNICK Mfg. Co., 671 E. Atwater St., Detroit, Mich.

MAXWELL & Fitch Co. (The), 218 So. Washington St., Rome, N. Y.

MAYO Damper Co., 355 Walnut St., Pottstown, Pa.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

McHARDY Carbureter Co., Providence, R. I.

MORGAN, B., 88 John St., Newport, R. I.

MOTOR Components Mfg. Co., 119-121 E. Walnut St., Des Moines, Ia.

MUNCIE Auto Parts Co., Muncie, Ind.

NEWCOMB Carbureter Co., 1900 Broadway, N. Y. City.

NORTH Chicago Mach. Co., North Chicago, Ill.

POWER, J. J., 653 E. Main St., Madison, Wis.

RICHARD, Francois, 511 W. 59th St., N. Y. City.

RUBAY, Leon, 136 W. 38th St., N. Y. City (Importer).

SARIS, J. H., Beloit, Wis.

SHERWOOD Mfg. Co., Buffalo, N. Y.

SINTZ, Guy L., Fulton and Front Sts., Grand Rapids, Mich.

SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page 37).

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

VAN DUZEN Gaso. & Gas Engine Co., State and Mill Sts., Cincinnati, O.

WESTERN Motor Co., Logansport, Ind.

WHEELER & Schebler, Indianapolis, Ind.

CARRIAGE HARDWARE

BLAKESLEE Forging Co., Plantsville, Conn.

CLEVELAND Hardware Co. (The), 1300 Lake St., Cleveland, O.

COLUMBUS Bolt Works, 162 W. Randolph St., Columbus, O.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

CORTLAND Carriage Goods Co., Cortland, N. Y.

CORTLAND Forging Co., Cortland, N. Y.

COWLES, C. & Co., New Haven, Conn.

DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 53).

EBERHARD Mfg. Co., Cleveland, O.

ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.

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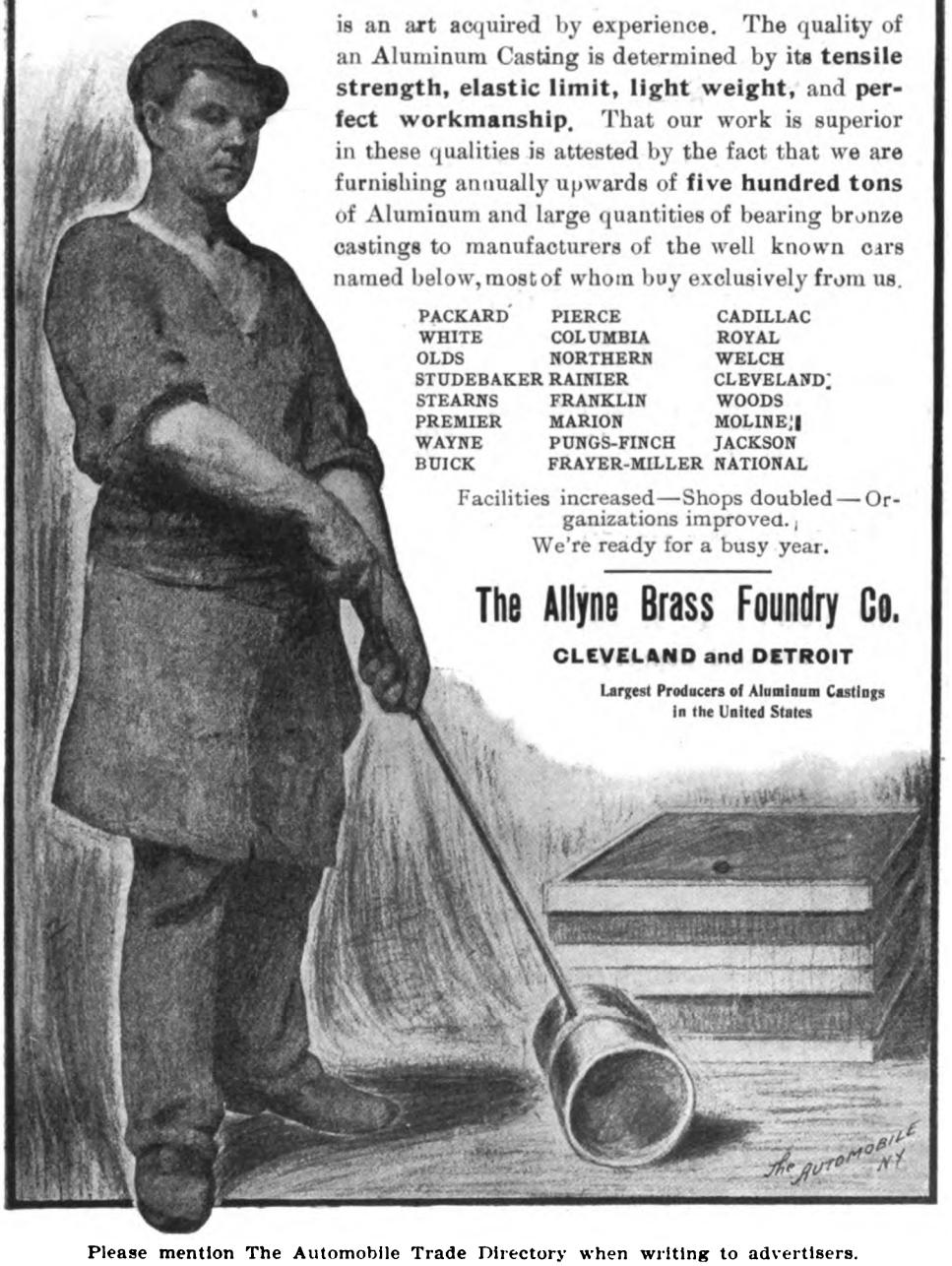

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FRANKLIN Moore Co. (The), Winsted, Conn.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

METAL Stamping Co., 468-472 W. B'way, N. Y. City.

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 51).

NEIDER Co., F. A. (The), Augusta, Ky. (see page 53).

NEW Britain Hardware Mfg. Co., New Britain, Conn.

ROEHM & Davison, Woodbridge & Wayne Sts., Detroit, Mich.

SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.

TAYLOR Co., H. D., 101-105 Oak St., Buffalo, N. Y.

WING Co., Chas., Amesbury, Mass.

CASES (Engine, Gear and Chain)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 29).

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DETROIT Auto. Top Co., Detroit, Mich.

REEDY, W. E., Lima, O.

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 51).

CASTINGS (Brass, Bronze, Aluminum and Copper)

ACORN Brass Mfg. Co., Chicago, Ill.

ALLEN Mfg. Co., W. D., 151 Lake St., Chicago, Ill.

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 39).

ALUMINUM Foundry Co., Manitowoc, Wis.

AMERICAN Brass Fdry. Co., Hyde Park, Mass.

AMERICAN Fdry. & Mach. Co., Hanover, Pa.

AMERICAN Pin Co., Waterbury, Conn.

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.

CHICAGO Hardware Fdry. Co., North Chicago, Ill.

CLARK, John W., Albany, N. Y.

CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.

COLUMBUS Brass Co., Columbus, O.

CRAMP & Sons Ship & Engine Building Co., Wm., Philadelphia, Pa.

ELKHART Brass Mfg. Co., Prospect St., Elkhart, Ind.

ELM CITY Brass Co., New Haven, Conn.

ENTERPRISE Foundry Co., Detroit, Mich.

EUREKA Tempered Copper Wks., Northeast, Pa.

FOREST City Brass Wks., Cleveland, O.

GAYLORD Co., F. L., Ansonia, Conn.

GERSON-Carey Co., Lansing, Mich.

GRAHAM, James & Co., 293 Wooster St., New Haven, Conn.

HENDRYX & Co., Andrew B., New Haven, Conn.

HOFELLER Brass Fdry. Co., 100 Terrace, Buffalo, N. Y.

HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 31).

HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.

IMPERIAL Brass Mfg. Co. (The), 251 So. Jefferson St., Chicago, Ill. (see page 71).

JEFFERSON Brass Foundry, Brooklyn, N. Y.

KEYSTONE Brass Fdry. Co., 188 Berks St., Philadelphia, Pa.

KOKOMO Brass Wks., 351 N. Smith St., Kokomo, Ind.

LANGSENKAMP Bros., 136-142 E. Georgia St., Indianapolis, Ind.

LIBERTY Bell Co., Bristol, Conn.

LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 43).

MANHATTAN Brass Co., New York, N. Y.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

NATIONAL Car Wheel Co., Sayre, Pa.

NATIONAL Car Wheel Co., Rochester, N. Y.

NEW JERSEY Aluminum Co., 19th and Springfield Ave., Newark, N. J.

NOLTE Brass Co., Springfield, O.

NORWALK Brass Co., Norwalk, Conn.

OBERDORFER Brass Co., M. L., 804 East Water St., Syracuse, N. Y.

OHIO Brass Co., Mansfield, O.

PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.

PIONEER Brass Works, Indianapolis, Ind.

PITTSBURG Brass Mfg. Co., Pittsburg, Pa.

PITTSBURG Reduction Co., Pittsburg, Pa.

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RACINE Brass & Iron Co., Racine, Wis.

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SPENCER'S Sons, I. S., Guilford, Conn.

STANDARD Foundry Co., Hartford, Conn.

STOVER Mfg. Co., Freeport, Ill.

SYRACUSE Aluminum & Bronze Co., 530 Leavenworth Ave., Syracuse, N. Y. (see page 41).

TURNER Brass Wks., Franklin & Michigan Sts., Chicago, Ill.

UNIQUE Metal Co., 89-91 Niagara St., Buffalo, N. Y.

UNITED States Aluminum Co., Pittsburg, Pa.

U. S. Aluminum Castings Co., Hamilton & Vandalia Aves., Cincinnati, O.

U. S. Bronze Co., 149 Columbus St., Cleveland, O.

VINCENT Valve Co., Sandusky, O.

WALTHAM Brass & Aluminum Co., Waltham, Mass.

WESTERN Brass Mfg. Co., 21st and Rockwell St., Chicago, Ill.

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

CASTINGS (Gray Iron)

ACME Fdry. Co., Sweeney St., Cleveland, O.

AMERICAN Fdry. & Mach. Co., Hanover, Pa.

BARCUS & Co., Geo., Wabash, Ind.

BARLOW, Arthur E., Newark, N. J.

BELLE CITY Mfg. Co., Racine Junction, Wis.

BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.

BUFFALO Foundry Co., Buffalo, N. Y.

CAPITOL Foundry Co., Hartford, Conn.

CHICAGO Hardware Fdry. Co., North Chicago, Ill.

CRAMP & Sons Ship. & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DAVENPORT Fdry. & Mach. Co., Davenport, Ia.

ENTERPRISE Fdry. Co., Detroit, Mich.

ERIE Fdry. Co., Erie, Pa.

FULTON Fdry. & Mach. Wks., 25 Furman St., Brooklyn, N. Y.

GREY Iron Castings Co., Mt. Joy, Pa.

HAYES Foundry Co., Lynn, Mass.

HOFFMAN Hinge & Fdry. Co., Cleveland, O.

HOLBROOK-ARMSTRONG Iron Co., Racine, Wis.

HOPSON & Chapin Mfg. Co., New London, Conn.

INTER-State Foundry Co., Cleveland, O.

LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page 45).

MANUFACTURERS' Fdry. Co., Waterbury, Conn.

MARINETTE Gas Eng. Co., Chicago Heights, Ill.

MEEKER Fdry. Co., 95 Clay St., Newark, N. J.

NATIONAL Car Wheel Co., Cleveland, O.

NATIONAL Car Wheel Co., Sayre, Pa.

PALMERS & De Mooy Fdry. Co., Cleveland, Ohio.

RACINE Brass & Iron Co., Racine, Wis.

SESSIONS Foundry Co., Bristol, Conn.

SPENCER'S Sons, I. S., Guilford, Conn.

STANDARD Fdry. & Mfg. Co., Cleveland, O.

STOVER Mfg. Co., Freeport, Ill.

STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.

TARRANT Foundry Co., Chicago, Ill.

UTICA Foundry Co., Utica, N. Y.

UTICA Steam Eng. & Boiler Wks., Utica, N. Y.

WILCOX, Crittenden & Co., Middletown, Conn.

CASTINGS (Malleable Iron)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.

ARCADE Malleable Iron Co., Worcester, Mass.

BARLOW, Arthur E., Newark, N. J.

BEAVER Dam Malleable Iron Co., Beaver Dam, Wis.

BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.

BUHL Malleable Iron Co., Detroit, Mich.

COLUMBUS Malleable Iron Co., Columbus, O.

DAYTON Malleable Iron Co., Dayton, O.

EBERHARD Mfg. Co. (The), Cleveland, O.

FLAGG & Co., Stanley G., Philadelphia, Pa.

FRAZER & Jones Co., Syracuse, N. Y.

HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.

ILLINOIS Malleable Iron Co., Chicago, Ill.

MALLEABLE Iron Fittings Co., Branford, Conn.

MEEKER Fdry. Co., 95 Clay St., Newark, N. J.

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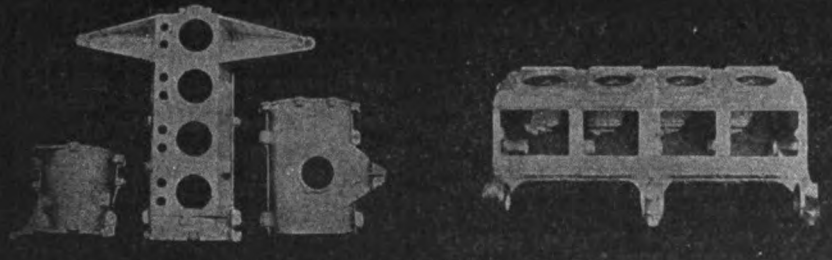
VERY HARD AND DURABLE

but cannot cut the journal

In ordering Phosphor Bronze Castings note adaptation of the qualities above given.



LIGHT MFG. & FOUNDRY CO.

POTTSTOWN, PA. U. S. A.

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NAUGATUCK Malleable Iron Co., Naugatuck, Conn.

NORWAY Iron & Steel Co., York, Pa.

ORISKANY Malleable Iron Co., Oriskany, N. Y.

OSHKOSH Malleable Iron Co., Oshkosh, Wis.

PORT HURON Engine & Thresher Co., Port Huron, Mich.

RACINE Malleable & Wrought Iron Co., Racine, Wis.

RHODE ISLAND Malleable Iron Wks., Hills Grove, R. I.

SOUTH Side Steel & Malleable Casting Co., Windlake & 14th Aves., Milwaukee, Wis.

STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.

SYRACUSE Malleable Iron Wks., Syracuse, N. Y.

TRENTON Malleable Iron Co., Trenton, N. J.

WILMINGTON Malleable Iron Co., Wilmington, Del.

CASTINGS (Steel)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.

ADRIAN Steel Casting Co., Adrian, Mich.

AMERICAN Steel Castings Co., Chester, Pa.

ARCADE Malleable Iron Co., Worcester, Mass.

ATHA Steel Co., Newark, N. J.

BETHLEHEM Steel Co., So. Bethlehem, Pa.

CARPENTER Steel Co. (The), Reading, Pa.

CHESTER Steel Castings Co., Chester, Pa.

CHROME Steel Works, Brooklyn, N. Y.

CRUCIBLE Steel Castings Co., Milwaukee, Wis.

DUTCHER Co., J. A. & P. E., Milwaukee, Wis.

FERRO Carbon Castings Co., Frankford, Philadelphia, Pa.

FLAGG & Co., Stanley G., Philadelphia, Pa.

FRAZER & Jones Co., Syracuse, N. Y.

HYLE Steel Tool Co., Tully and West Sts., Syracuse, N. Y.

JOHNSON & Co., Isaac G., Spuyten Duyvil, N. Y.

JOHNSTON, Geo. H., P. O. Box 13, Sparrows Point, Md.

LELAND & Faulconer Mfg. Co., Detroit, Mich. (see page opposite).

LOGAN Mfg. Co., Phoenixville, Pa.

MACKINTOSH, Hemphill & Co., Pittsburg, Pa.

MASSACHUSETTS Steel Casting Co., West Everett, Mass.

MASSEY Machine Co., Watertown, N. Y.

MESTA Machine Co., Pittsburg, Pa.

MILWAUKEE Steel Fdry. Co., Milwaukee, Wis.

N. E. Steel Castings Co., Hdye Park, Mass.

N. E. Steel Castings Co., 26 Cortlandt St.,

NEWARK Iron & Steel Co., Newark, O.

NEW JERSEY Steel Co., Rahway, N. J.

NORWAY Iron & Steel Co., York, Pa.

OTIS Steel Co., Cleveland, O.

PROVIDENCE Steel Castings Co., Providence, R. I.

RIVERSIDE Foundry, The, 451-473 Riverside Ave., Newark, N. J.

SMITH Steel Castings Co., Geo. H., 500 Clinton St., Milwaukee, Wis.

TAYLOR Iron & Steel Co., High Bridge, N. Y.

TOBIN-Gerlinger Steel Castings Co., West Allis, Wis.

TOOL Steel Castings Co., 90 Canal St., Boston, Mass.

UNIFORM Steel Co., Newark, N. J.

WESTERN Malleable Steel Co., River and Clark Sts., Detroit, Mich.

WHITELEY Steel Co., Muncie, Ind.

WILMINGTON Malleable Iron Co., Wilmington, Del.

WORCESTER Steel Foundry Co., Worcester, Mass.

CEMENT (Tire)

AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BUFFALO Specialty Co., Buffalo, N. Y.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

G. A. HOSMER Co., 376 Ellicott St., Buffalo, N. Y.

LYON Rubber Co., Akron, O.

MAGNET Cement & Dressing Co., 878 No. 48th St., Philadelphia, Pa.

NATIONAL Cement & Rubber Mfg. Co., Toledo, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

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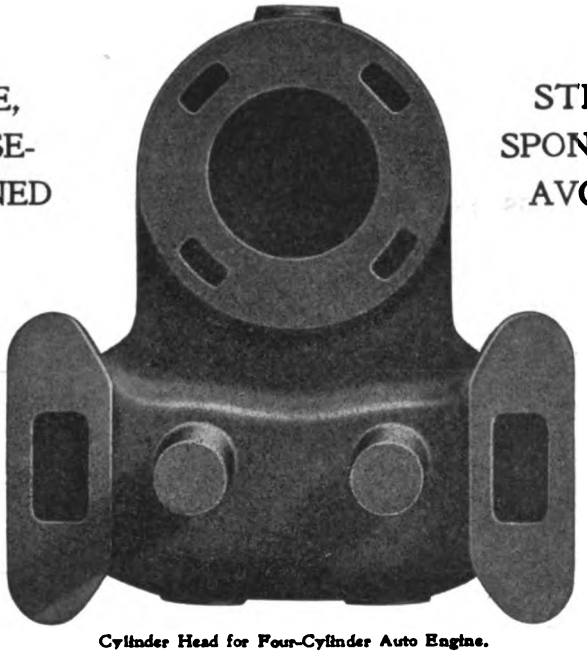
AUTOMOBILE

ENGINE CASTINGS

FINE, CLOSE-GRAINED

STRONG, SPONGINESS AVOIDED.



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BALDWIN Chain & Mfg. Co., Worcester, Mass.

DIAMOND Chain & Mfg. Co., Indianapolis, Ind.

DUCKWORTH Chain & Mfg. Co., Springfield, Mass.

LEFEVRE Arms Co., Syracuse, N. Y.

LINK Belt Engineering Co., Nicetown, Pa.

MILLER, Chas. E., 97 Reade St., N. Y. City. (Importer).

MORSE Chain Co., Trumansburg, N. Y.

WHITNEY Mfg. Co. (The), Hartford, Conn.

CHANNELS

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

GARFORD Co. (The), Elyria, O. (see page 9).

STANDARD Welding Co., Cleveland, O.

WESTON-Mott Co., Utica, N. Y.

CHARGING EQUIPMENT (Electrical)

ADVANCE Mfg. Co., Hamilton, O.

BAKER Motor Vehicle Co., Cleveland, O.

BENJAMIN Electric Mfg. Co., 42 W. Jackson Bldg., Chicago, Ill. (see page 27).

BRONSON & Davis, 463 Fairmount Ave., Blue Island, Ill.

BULLOCK Electric Mfg. Co., Cincinnati, O.

COOPER-Hewitt Electric Co., 220 W. 29th St., N. Y. City.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

GENERAL Elec. Co., Schenectady, N. Y.

GENERAL Power Co. (The), 100 William St., N. Y. City.

M'MULLIN Motive Power & Construction Co., 472 Carroll Ave., Chicago, Ill.

MERRIAM-Abbott Co., 60 E. Prospect St., Cleveland, O.

NEW England Motor Co., Lowell, Mass. (see page 25).

PIERCE-CROUCH Eng. Co., Penn Ave., New Brighton, Pa.

RICHARDSON Engineering Co., 36 Pearl St., Hartford, Conn.

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

WAGNER Electrical Mfg. Co., 2017 Locust St., St. Louis, Mo.

WESTINGHOUSE Electric & Mfg. Co., Pittsburg, Pa.

CLEVICES (See Screw Machine Products)

CLOCKS (Auto)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

CHELSEA Clock Co., 16 State St., Boston, Mass. (Auto and Motor Boat) (see page opposite).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

LEVY, Manasseh, 182 Broadway, New York.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

WILSON Auto. Clock Co., 935 Arch St., Philadelphia, Pa.

WHEELOCK Motor Car Clock Co., Tremont Bldg., Boston, Mass.

CLOTHING (Auto)

AMERICAN Buffalo Robe Co., Buffalo, N. Y.

AUTO Garment Co., Cedar Rapids, Ia.

BISHOP & Co., The J. H., Wyandotte, Mich.

BRANN, E., 1225 Park Ave., N. Y. City.

BROOKS Bros., 22d St. & B'way, N. Y. City.

CROSBY Frisian Fur Co., 116 Mill St., Rochester, N. Y.

DAVIS Robe Co., The, Inc., 1307 Champlain Bldg., Chicago.

DEMMERLE & Co., 248 W. 23d St., N. Y. City.

DOUGHERTY & Colt Mfg. Co., 105 W. Bridge St., Columbus, O.

FULLER & Sullivan, 19 Elliott St., Boston, Mass.

GILBERT Mfg. Co., New Haven, Conn. (see page 51).

GUNTHER'S Sons, G C., 184 5th Ave., N. Y. City.

HANSEN Mfg. Co., O. C., 356 E. Water St., Milwaukee, Wis. (see page 65).

HODGMAN Rubber Co., 806 Broadway, N. Y. City.

LADIES' Supply Co., 3118-3120 Forest Ave., Chicago, Ill.

LILLEY, M. C., & Co., Columbus, O.

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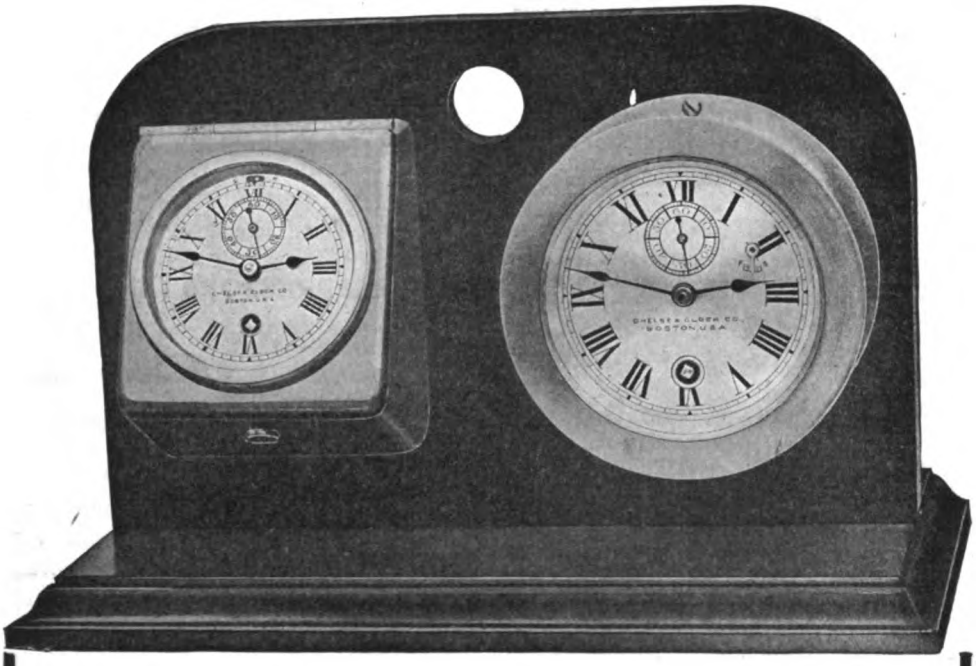

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$3\frac{1}{2}$ inch Motor Clock For MOTOR Boats and Cars
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(TRADE MARK)

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All have polished Cast Brass Duplex (patent applied for) Screw Bezel Cases (the most thoroughly water-proof case on the market), and the $2\frac{3}{4}$ inch "Special" Auto Clock, also is in an outer (locked) case showing dial on an angle of about 35 degrees, and when not in use on car may be removed from its outer (locked) case and makes an attractive 8-day reliable clock for use on desks, mantels, bureaus, etc., etc., a feature that will be appreciated by tourists.

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MACULLAR-Parker Co., Boston, Mass.

MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.

MILFORD Auto. Coat Co. (The), Milford, Mass.

MOORE-Smith Co., Boston, Mass.

MORAWETZ Co. (The), Milwaukee, Wis.

N. Y. Leather Coat Co., 207 Greene St., New York.

OUR OWN Mfg. Co., New York.

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

ROGERS, Peet & Co., N. Y. City.

RUSZITS, John, Fur Co., 73-77 Mercer St., N. Y. City.

SAKS & Co., 34th St. & B'way, N. Y. City.

SCANDINAVIAN Fur & Leather Co., 16 W. 33d St., New York, N. Y.

SCOTT-Muffler Co. (The), Portsmouth, O. (see page 91).

SHUMAN, A., & Co., Boston, Mass.

SMITH, Gray & Co., N. Y. City.

SMITH, Crary & Davidge, 174 Water St., Binghamton, N. Y.

SPEAR-Martin Fur Co., Burlington, Vt.

SPRAGUE, F. H. Co., Orange, Mass.

WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

WESTERN Robe Co., Detroit, Mich.

CLUTCHES (Speed Changing)—(See Gears)

CLUTCHES

BLEVNEY, John C., 216 High St., Newark, N. J.

CARLYLE & Johnson Machine Co., Hartford, Conn.

CONTINENTAL Motor Mfg. Co., 240 W. Lake St., Chicago, Ill.

DOUBLE-Friction Coil Clutch Co., 45 Canal St., Chicago, Ill.

GARFORD Co. (The), Elyria, O. (see page 9).

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

MUNCIE Auto Parts Co., Muncie, Ind.

NATIONAL Brake & Clutch Co., 16 State St., Boston, Mass.

SMITH Co., A. O., Milwaukee, Wis.

SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page 37).

STURTEVANT Mill Co., Harrison Sq., Boston, Mass.

UNIVERSAL Clutch Co., 226 S. 11th St., Philadelphia, Pa.

COLUMNS (See Water Alarms & Columns)

COMMUTATORS (See Controllers, Electric)

COMPRESSORS (Air)

CHICAGO Pneumatic Tool Co., 1010 Fisher Bldg., Chicago, Ill.

CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.

CROWELL, Gilmer, 292-296 Graham St., Brooklyn, N. Y.

HASTINGS & Anderson, Chicago, Ill.

HUMPHREYS Mfg. Co., Mansfield, Ohio.

LEATHER & Brass Mfg. Co., Auburn, N. Y.

MARTIN & Anson Co., 2232 Cottage Grove Ave., Chicago, Ill.

NEW Era Gas Engine Co., 9 Dale Ave., Dayton, O.

PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

WESTINGHOUSE Air Brake Co., Pittsburg, Pa.

COMPRESSORS (Register)

AUTO Novelty Co., Milwaukee, Wis.

CONDENSERS

CHICAGO Auto. Mfg. Co., 4230 State St., Chicago, Ill.

NATIONAL Oil Burner & Equipment Co., Holland Bldg., St. Louis, Mo.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 69).

CONNECTING RODS

ANDERSON Forge & Machine Co., Detroit, Mich.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GILL & Sons Forge & Machine Works, P. H., Brooklyn, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

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STANDARD Connecting Rod Co., Beaver Falls, Pa.

CONNECTORS, Wire (See Wire Terminals)

CONTROLLERS (Electric)

ELECTRIC Vehicle Equipment Co., 20th St. & Montgomery Ave., Philadelphia, Pa.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

GENERAL Electric Co., Schenectady, N. Y.

KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.

LAMB & Co., Kent and Lyon Sts., Grand Rapids, Mich.

LINCOLN Electric Co., Cleveland, O.

WESTINGHOUSE Elec. and Mfg. Co., Pittsburg, Pa.

COOLERS (See Radiators)

COUPLINGS (Brass) (See Also Fittings—Pipe)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

PENINSULAR Milled Screw Co., Detroit, Mich.

COUPLINGS (Hose)

DOYLE Hose Union Co. (The), 810 Ann St., Homestead, Pa.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

MORGAN, B., Newport, R. I.

PITTSBURG Hose Connector Co., Pittsburg, Pa.

COVERS (Auto)

BURGIN Bros., Springfield, Mass.

GILBERT Mfg. Co., New Haven, Conn. (see page opposite).

LANDERS Bros. Co., 445 10th St., Toledo, O. (see page 103).

QUINBY, J. M. Co., 1534 B'way, N. Y. City.

VEHICLE Apron and Hood Co., Columbus, Ohio.

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 51).

CRANK SHAFTS

ANDERSON Forge & Machine Co., Detroit, Mich.

BILLINGS & Spencer Co., Hartford, Conn.

BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).

GILL & Sons, P. H., Forge & Mach. Wks., Brooklyn, N. Y.

LELAND, W. H., & Co., 6 Sheridan St., Worcester, Mass.

STANDARD Connecting Rod Co., Beaver Falls, Pa.

STANDARD Welding Co., Cleveland, O.

TINDEL-MORRIS Co., Eddystone, Pa.

WYMAN & Gordon, 30 Bradley St., Worcester, Mass.

CRUCIBLES

BRIDGEPORT Crucible Co., Bridgeport, Conn.

DIXON, Jos., Crucible Co., Jersey City, N. J.

OBERMAYER Co., S., (The), 641 Evans St., Cincinnati, O.

WISCONSIN Graphite Co., Allegheny, Pa.

CUPS (Ball)

CROSBY Co. (The), Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

NATIONAL Cycle Mfg. Co., Bay City, Mich. Mass.

WORCESTER Pressed Steel Co., Worcester, Mass.

CUPS AND CONES

COLLMER Bros. South Bend, Ind.

CORBIN, P. & F., New Britain, Conn.

DETROIT Screw Works, Detroit, Mich.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.

HOUGHTON & Buxton, Worcester, Mass.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

MATHEWS, H. A., Mfg. Co., Seymour, Conn.

NEW Britain Hardware Mfg. Co. (The), New Britain, Conn.

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CURTAIN Supply Co., 85-93 Ohio St., Chicago, Ill.

ENEAS, A. G., 50 Congress St., Boston, Mass.

IDEAL Storm Curtain Co., McPherson, Kas.

SPRAGUE Umbrella Co. (The), Norwolk, O.

CURTAIN FASTENERS

SMITH & Co., Jos. N., Detroit, Mich.

NEIDER Co., F. A. (The), Augusta, Ky. (see page opposite).

ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.

TAYLOR Co., H. D., 103-105 Oak St., Buffalo, N. Y.

WING Co., Charles, Amesbury, Mass.

CUSHIONS

DETROIT Carriage Co., Detroit, Mich.

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.

KELLEY, E., & Co., 509 Main St., Worcester, Mass.

LARRIMORE Buggy Top Co., Baltimore, Md.

MECHANICAL Fabric Co., Providence, R. I.

NEWTON, W. H. & Son, 127 Elm St., Cortland, N. Y.

PELINKA, Frank, 409 Blue Island Ave., Chicago, Ill.

PNEUMATIC Mattress & Cushion Co., 5 Fourth St., N. Y. City.

SPRINGFIELD Auto. Top & Upholstering Co., Springfield, Mass.

VENTILATED Cushion Co., 1524 Michigan Ave., Chicago, Ill.

WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 119).

CYCLOMETERS (See Indicators—Speed and Distance)

DASHES AND FENDERS

A-Z Co. (The), 462 11th Ave., N. Y. City.

AMERICAN Veneer Co., Kenilworth, N. J.

BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 101).

COLE & Woop, New York City.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

DANN Bros. Co., New Haven, Conn.

DETROIT Auto Specialty Co., 909-911 Greenwood Ave., Detroit, Mich. (see page 69).

DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

EVERITT, B. F., 65 E. Fort St., Detroit, Mich.

FEDDERS Mfg. Co., Buffalo, N. Y. (see page 101).

HALL, E. H., Co. (The), Inc., 12 Elm St., Rochester, N. Y.

HAYES Mfg. Co. (The), 773 Bellevue Ave., Detroit, Mich.

INDIANAPOLIS Dash Co., Indianapolis, Ind.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 17).

KINSEY Mfg. Co., Dayton, O. (see page 23).

LOCKE & Co., 218-220 West 84th St., New York.

MAYO Radiator Co. (The), New Haven, Conn. (see page 99).

M'KINNON Dash Co., Buffalo, N. Y.

MOORE & Munger Co., 602 W. 52d St., New York.

NEW York Dash & Fender Co., 516-520 W. 36th St., N. Y. City.

PETERS & Herron Dash Co. (The), Columbus, O.

QUINBY & Co., J. M., Newark, N. J.

SPRINGFIELD Metal Body Co., Springfield, Mass.

WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

DASH LIGHTS

BROWN, R. E., Whitney Bldg., Section B, Power Ave., Cleveland, O. (see page opposite).

DROP FORGINGS

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ANDERSON Forge & Machine Co., Detroit, Mich.

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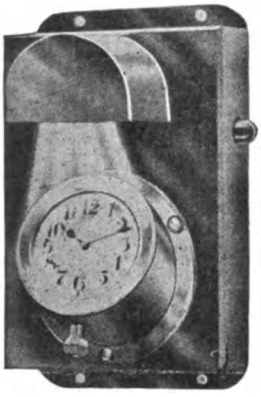

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BAKER, Jas. H., Mfg. Co., 503 Park Bldg., Pittsburg, Pa.

BATES Forge Co., Indianapolis, Ind.

BELDEN Machine Co., New Haven, Conn.

BETHLEHEM Steel Co., So. Bethlehem, Pa.

BILLINGS & Spencer Co., Hartford, Conn.

BLAKESLEE Forging Co., Plantsville, Conn.

BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.

BROOKEBANK, Mullin & Co., 409 Commerce St., Philadelphia, Pa.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page opposite).

CAPE Ann Tool Co., Pigeon Cove, Mass.

CHICAGO Drop Forge Co., Kensington, Ill.

CHICAGO Drop Forge & Foundry Co., West Pullman, Ill.

CLAPP, E. D., Mfg. Co. (The), Auburn, N. Y.

CORLISS Engine Works, Providence, R. I.

CORTLAND Forging Co., Cortland, N. Y.

DYSON, Jos. & Sons, Hamilton & Kirtland Sts., Cleveland, O.

EASTERN Forge Co., 70 Kilby St., Boston, Mass.

ECCLES, Richard, Auburn, N. Y.

FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.

GENERAL Railway Signal Co., 1738 Elmwood Ave., Buffalo, N. Y. (see page opposite).

GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.

INDIANAPOLIS Drop Forging Co., Madison Ave. and Downey St., Indianapolis, Ind.

KEYSTONE Drop Forge Co., Chester, Pa.

KILBORN & Bishop Co. (The), New Haven Conn.

KINGSTON Truck & Bolt Co., Kingston, N. Y.

MICHIGAN Bolt & Nut Wks., Detroit, Mich.

MOORE Drop Forging Co., Springfield, Mass.

PAIGE-Storms Drop Forge Co., Chicopee Falls, Mass.

REVERE Drop Forge Co., Revere, Mass.

RICHMOND Forging Corporation, Richmond, Va.

RYMAN Co., K. L., 164 Market St., Newark, N. J.

SCRANTON Forging Co., Scranton, Pa.

SEWARD & Son Co., M., New Haven, Conn.

SMITH Co., A. O., Milwaukee, Wis.

SMITH, H. D., & Co., Plantsville, Conn.

SPRINGFIELD Drop Forging Co., Springfield, Mass.

STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.

TRASNUE & Williams Co. (The), Alliance, Ohio.

UNION Drop Forge Co., 64-76 E. Ohio St., Chicago, Ill.

WHITMAN & Barnes Mfg. Co., Akron, O.

WILCOX, D., Mfg. Co., Mechanicsburg, Pa.

WILLIAMS, J. H., & Co., Brooklyn, N. Y.

WORCESTER Pressed Steel Co., Worcester, Mass. (cold).

WYMAN & Gordon 30 Bradley St., Worcester, Mass.

DUST RINGS (See Felt Washers)

DUST SHIELDS

BROWN, W. H., Lennox Bldg., Cleveland, O.

GODDARD & Allen, Rockford, Ill.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 51).

DYNAMOS (See Generators)

EJECTORS

LOCKE Regulator Co., Salem, Mass.

PENBERTHY Ejector Co., Detroit, Mich.

RUE Mfg. Co., 215 Race St., Philadelphia, Pa.

SHERWOOD Mfg. Co., Buffalo, N. Y.

ELECTROLYTE

KALBFLEISCH, Franklin H. Co., Broadway and 16th St., N. Y. City.

ELEVATORS (for Garages)

BREWER, Elias, 42 Sudbury St., Boston, Mass.

EATON & Prince, 76 Mich. St., Chicago, Ill.

HOYT Elevator Co., 129 Pearl St., Boston, Mass.

NEW Amer. Elevator Co., The, Curtis and Jefferson Ave., Columbus, O.

OTIS Elevator Co., Railway Exchange, Chicago, Ill.

STORM Mfg. Co., The, foot of Centre St., Newark, N. J.

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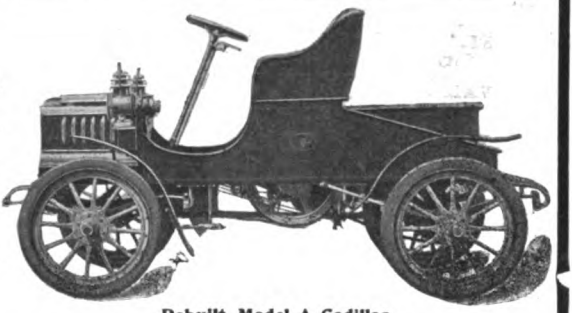

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EMERGENCY CASES (Medical)

ABBEY & Co., P. L., Kalamazoo, Mich.

U. S. EMERGENCY Case Co., Utica, N. Y. (see page 31).

ENAMEL

ACME White Lead & Color Wks., Detroit, Mich.

AMERICAN Enamel Co., Providence, R. I.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.

BERRY Bros., Ltd., Detroit Mich. (see front cover).

BUFFALO Enamel & Stain Co., 70-72 W. Genesee St., Buffalo, N. Y.

COLOPHITE Co. (The), New Haven, Conn.

DETROIT White Lead Wks., 532 E. Milwaukee Ave., Detroit, Mich.

DITZLER Color Co., 14 Baltimore Ave. W., Detroit, Mich.

FELTON, Sibley & Co., 136-140 North Fourth St., Philadelphia, Pa.

NATIONAL Cement & Rubber Mfg. Co., 3053-3059 Monrbe St., Toledo, O.

RUBBER Paint Co., 154-156 W. Van Buren St., Chicago, Ill.

SHERWIN-Williams Co., 100 Canal St., Cleveland, O.

STANDARD Varnish Co., 29 B'way, N. Y. City.

VALENTINE & Co., 257 Broadway, N. Y. City.

WATTS-De Golyer Co. (The), 377-391 Illinois St., Chicago, Ill.

ENGINES—Gasoline (See Motors —Gasoline)

ENGINES (Steam)

ABELL, Rollin, 370 Atlantic Ave., Boston. Mass.

DIETER Steam Engine Co., 113 Liberty St., New York.

ESTY, Wm., 59 Mill St., Laconia, N. H.

FOX Valveless Steam Engine Co., Rochester, N. Y.

HILL Engine Co., Kenosha, Wis.

HILBURN, Edwin, Spring Valley, Minn.

LAKEPORT Mfg. Co., Lakeport, N. H.

MASON Regulator Co., 158 Summer St., Boston, Mass.

MILNE, Frank, Crescent St., Everett, Mass.

NADIG, C. H., & Bro., Mfg. Co., 16-24 No. 4th St., Allentown, Pa.

RACINE Engine & Iron Wks. Racine, Wis.

RANDALL, G. N., 1094 French St., Meadville, Pa.

ROCHESTER Machine Tool Wks., Ltd., Rochester, N. Y.

SANTA Ana Machine & Foundry Co., Santa Ana, Cal.

SMITH, Wm. J., New Haven, Conn.

WILLIAMS Co. (The), John, 114-118 Liberty St., N. Y. City.

EYE SHIELDS

AMERICAN Thermo-ware Co., 16 Warren St. (Importers), New York.

AUTOMOBILE Equipment Co., 268 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

CHICAGO Eye Shield Co., 112 Randolph St., Chicago, Ill.

ERHLICH & Son, J., 1345 Broadway, N. Y. City.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page opposite).

GLOBE Optical Co., Boston, Mass.

LLOYD, A. J., & Co., 323 Washington St., Boston, Mass.

MEYEROWITZ, E. B., 104 E. 23d St., N. Y. City.

MILLER, Chas. E. (Importer), 97 Reade St., N. Y. City.

MILLS Mfg. Co., 1368-1370 Broadway, N. Y. City.

MUNSELL & Co., Eugene, 218 Water St., N. Y. City.

NORTH Carolina Mica Co., 95 Blackstone St., Boston, Mass.

OELSCHLAGER Bros., 42 E. 23d St., N. Y. City.

OPHTHALMUSCOPE Co., 3322 Monroe St., Toledo, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

SCHEIDIG & Co., Maiden Lane, N. Y. City.

SPENCER Optical Mfg. Co., 15 Maiden Lane, N. Y. City.

SUSSFIELD, Lorsch & Co., 37 Maiden Lane, N. Y. City.

TEXAS Co. (The), Chicago, Ill.

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HOWE, G. S. & A. J., Co., 117 Exchange St., Worcester, Mass.

LANDAU, Henry W., 117 Green St., Newark, N. J. (see page opposite).

LITTLE Giant Mfg. Co., 88 Wall St., N. Y. City.

MONARCH Fire Appliance Co., 249 Pearl St., New York City.

NEVERMISS Fire Extinguisher Co., Middletown, N. Y.

PHOENIX Appliance Co., 15 W. 28th St., N. Y. City.

STEMPEL Fire Apparatus Mfg. Co., 4520 N. 20th St., St. Louis, Mo.

SUFFOLK Chemical Co., 174 Summer St., Boston, Mass. (see page opposite).

FITTINGS (Pipe, Brass)

BARRETT Mfg. Co., James, Boston, Mass.

BELFIELD & Co., H., Philadelphia, Pa.

BELKNAP Mfg. Co., Bridgeport, Conn.

BEST Manufacturing Co., Pittsburg, Pa.

BUCKEYE Iron & Brass Works, Dayton, O.

CENTRAL Brass Works, Cincinnati, Ohio.

CHAMBERS & Ainslee, Newark, N. J.

CRANE Co., Chicago, Ill.

DALTON-INGERSOLL Co., Boston, Mass.

DARLING Pump & Mfg. Co., Williamsport, Pa.

DETROIT Lubricator Co., Detroit, Mich.

DETROIT Sanitary Supply Co., Detroit, Mich.

EASTWOOD Wire Mfg. Co., Belleville, N. J.

EATON, Cole & Burnham Co., New York, N. Y.

FEWLESS-LEEN Brass & Iron Co., Cincinnati, Ohio.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

HAMLIN & Emery Brass Co., Boston, Mass.

HALDENVILLE Co., Haydenville, Mass.

HOFFMAN & Billings Manufacturing Co., Milwaukee, Wis.

HUMPHREYS Mfg. Co., Mansfield, Ohio.

IDEAL Manufacturing Co., Detroit, Mich.

ILLINOIS Malleable Iron Co., Chicago, Ill.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 71).

JARECKI Manufacturing Co., Erie, Pa.

KINSEY & Mahler Co., Peoria, Ill.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

McCAMBRIDGE & Co., Philadelphia, Pa.

McDONALD & Morrison Manufacturing Co., A. Y., Dubuque, Iowa.

McNAB & Harlin Mfg. Co., New York, N. Y.

McRAE & Roberts Co., 227-235 Campbell Ave., Detroit, Mich.

MANSFIELD Manufacturing Co., Pittsburg, Pa.

MASON Regulator Co., Boston, Mass.

MILWAUKEE Brass Mfg. Co., Milwaukee, Wis.

MOTT Iron Works, J. L., New York, N. Y.

MULLANEY'S Sons, Jas., New York, N. Y.

NEW Britain Brass Co., New Britain, Conn.

PETRIE, John, New Haven, Conn.

PIONEER Brass Works, Indianapolis, Ind.

PITTSBURG Valve & Fittings Co., Pittsburg, Pa.

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POWELL Co., Wm., Cincinnati, Ohio.

POWHATTAN Brass & Iron Wks., Charlestown, W. Va.

QUEEN CITY Brass & Iron Works, Cincinnati, O.

REGESTER'S Sons Co., J., Baltimore, Md.

ROSE, Clarence H., 1905 Park Row Bldg., N. Y. City.

RUNDLE-Spence Mfg. Co., Milwaukee, Wis.

SPEAKMAN Supply & Pipe Co., Wilmington, Del.

STANDARD Sanitary Mfg. Co., Pittsburg, Pa.

STEBBINS Mfg. Co., E., Springfield, Mass.

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FLOATS (Ball)

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NAUGATUCK Mfg. Co., Naugatuck, Conn.

FOOT RESTS

BURROWS Co., E. T., Portland, Me.

RANDS, Wm. C., 51 Macomb St., Detroit, Mich.

WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 119).

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FOR THE LACK OF $1.00 COST IN FIRE PROTECTION

Downey's 90-H.P. Mercedes that was burned at the Readville Races could have been saved with

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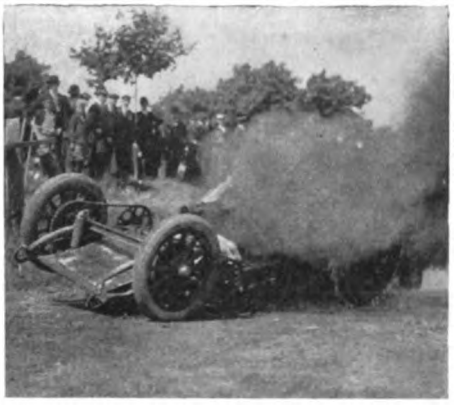

Downey's 90-H.P. Mercedes burning at the Readville Race Track.

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Composed of a Combination of Dry Chemicals of Absolute Permanency.

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Fire is liable to happen at the most unexpected times on the road or in the garage. Insure your car with the **Lightning Fire Extinguisher.**

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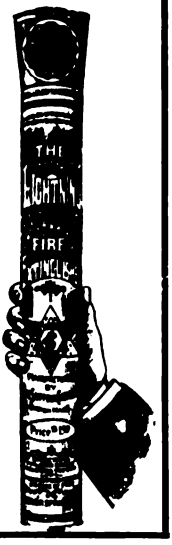

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"Fite Fire" equipment on thousands of cars; equip yours and feel safe. Eighty-seven per cent. of Auto Garages have had fires in 1905. "Fite Fire" does not freeze, corrode, explode, deteriorate, or get out of order; last indefinitely. Buy now before it's too late.

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INGERSOLL-Sergeant Drill Co., N. Y. City.

MINER & Peck Mfg. Co., New Haven, Conn.

NILES-Bement-Pond Co., N. Y. City.

STURTEVANT Co., B. F., Boston, Mass.

FRAMES (Pressed Steel)

CLEVELAND Car Specialty Co., Cleveland, Ohio.

CLEVELAND City Forge & Iron Fdry. Co., Cleveland, O.

KINSEY Mfg. Co., Dayton, O. (see page 23).

MUNCIE Wheel & Jobbing Co., Muncie, Ind.

PARRISH & Bingham, Cleveland, O.

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Pressed Steel Co., Philadelphia, Pa.

TURL'S Sons, John, 534 W. 28th St., N. Y. City.

FRICTION CLUTCHES (See Gears)

FUNNELS (Gasoline)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

A-Z Co. (The), 462 11th Ave., N. Y. City.

Beckley-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).

DOVER Stamping & Mfg. Co., 381 Putnam Ave., Cambridge, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

FROST Mfg. Co., Kenosha, Wis.

IVER Johnson Sporting Goods Co., Boston, Mass.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

TALIAFERRO, W. T., 258 Broadway, N. Y. City.

WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page 115).

GASKETS

BRANT, Randolph, 38 Cortlandt St., N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

GOODWIN & Kintz Co., Winsted, Conn.

HERZ & Co., Cor. Elm and Marion Sts., N. Y. City.

JOHNS-Manville Co., H. W., 100 William St., New York.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 79).

MORSE, R. F., 74 Weybosset St., Providence, R. I.

N. J. Asbestos Co., Camden, N. J.

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

U. S. Indestructible Gasket Co., 8 So. William St., New York.

U. S. Mineral Wool Co., N. Y. City.

GATES (Driveway)

MANLOVE Gate Co., 272 Huron St., Chicago, Ill.

GAUGES (Gasoline Tanks)

BOSTON Auto Gage Co., 294 Washington St., Boston, Mass.

BLOOD Bros. Auto & Mach. Co., Kalamazoo, Mich.

DUNN Pump & Measure Co., Anderson, Ind.

KINSEY Mfg. Co., Dayton, O. (see page 23).

MARTIN, M. A., 518 W. 63d St., Chicago, Ill.

OHIO Brass Co., Mansfield, O.

RUTENBER Co., Chicago, Ill.

SIMMONS, John, Co., 104-110 Centre St., N. Y. City.

WEBSTER Mfg. Co., 261 Jefferson Ave., Detroit, Mich. (see page opposite).

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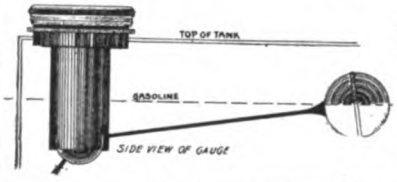

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OF ALL KINDS ALL LEADING MAKES CARRIED IN STOCK

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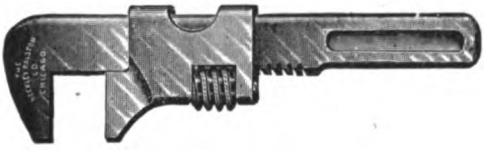

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ASHCROFT Mfg. Co., 87 Liberty St., N. Y.

ASHTON Valve Co., 271 Franklin St., Boston, Mass.

AUTO Novelty Co., Milwaukee, Wis.

BOSTON Steam Specialty Co., 168-170 Congress St., Boston, Mass.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFER & Budenburg Mfg. Co., Foxboro, Mass.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

WRAY Pump & Register Co., Rochester, N. Y.

GAUGES (Water Line)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plain, Boston, Mass.

KNOWLSON & M'Conihe, 65 River St., Troy, N. Y.

RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

GEAR BLANKS

DETROIT Screw Works, Detroit, Mich.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

GEAR CASES (Auto)

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 39).

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GARFORD Co. (The), Elyria, O. (see page 9).

HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 31).

LIGHT Mfg. & Fdry. Co., Pottstown, Pa. (see page 43).

PIONEER Brass Wks., Indianapolis, Ind.

SYRACUSE Aluminum & Bronze Co., 530 Leavenworth Ave., Syracuse, N. Y. (see page 41).

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

GEARS (Differential)

BOSTON Gear Wks., 152 Purchase St., Boston, Mass.

BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page opposite).

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page 111).

FORG, Peter, 50 Park St., Somerville, Mass.

GARFORD Co. (The), Elyria, O. (see page 9).

GRANT Gear Wks., 6 Portland St., Boston, Mass.

GRAY-Hawley Mfg. Co., 605-609 Fort St., W., Detroit, Mich.

MUNCIE Auto Parts Co., Muncie, Ind.

VIRTUE & Pound Mfg. Co., Owatonna, Minn.

WARNER Gear Co., Muncie, Ind.

GEARS, REVERSE (Marine)

BRODIE, Wm. H., 45 Vesey St., N. Y. City.

CARLYSLE & Johnson Mach. Co., Hartford, Conn.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

GEARLESS Transmission Co., Rochester, N. Y.

N. Y. Gear Wks., 56 Greenpoint Ave., Brooklyn, N. Y.

TUTTLE Mfg. Co., H. A., So. Norwalk, Conn.

WARNER Gear Co., Muncie, Ind.

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BEVERLY Mfg. Co., Beverly, Mass.

BOSTON Gear Works, 152 Purchase St., Boston, Mass.

BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page opposite).

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CARLYLE & Johnson Machine Co., Hartford, Conn.

CLEMICK-Hirsch Co., 594-596 National Ave., Milwaukee, Wis.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

GARFORD Co. (The), Elyria, O. (see page 9).

GEARLESS Transmission Co., Rochester, N. Y.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

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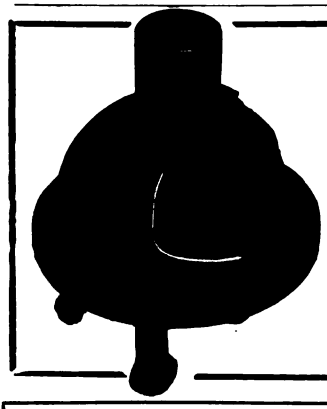

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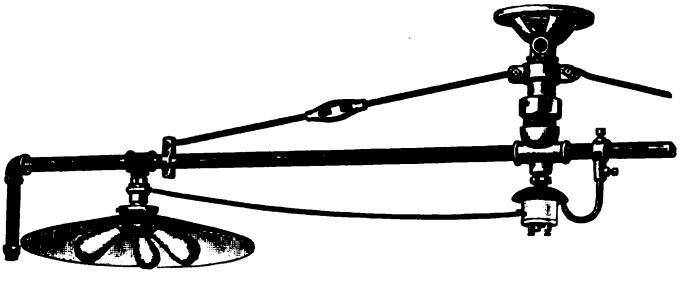

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KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.

LEE Mfg. Co. (The), South Park, Port Huron, Mich.

MILWAUKEE Auto. Engine & Supply Co., 706 Winnebago St., Milwaukee, Wis.

MILWAUKEE Motor Co., Milwaukee, Wis.

MUNCIE Auto Parts Co., Muncie, Ind.

MUNCIE Wheel and Jobbing Co., Muncie, Ind.

NEW York Gear Works, 56 Greenpoint Ave., Brooklyn, N. Y.

REDINGTON, F. B., & Co., 107-109 S. Sangamon St., Chicago, Ill.

ST. ANNE Kerosene Motor Co., St. Anne, Ill. (see page 67).

SHATTUCK Co., W. P., 2125 Girard Ave., So. Minneapolis, Minn.

SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.

SMITH Co., A. O., Milwaukee, Wis.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

STURTEVANT Mill Co., Harrison Sq., Boston, Mass.

SYRACUSE Gear Co., Syracuse, N. Y.

TORBENSEN Motor Car Co., Bloomfield, N. J.

TREBERT Gas Engine Co., 163-165 Main St., W., Rochester, N. Y.

VIRTUE & Pound Mfg. Co., Owatonna, Minn.

WESTERN Motor Co. (The), Logansport, Ind.

WESTON-Mott Co., Utica, N. Y.

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ADAPT Machinery Co. (The), 17th St. and Wabash Ave., Chicago.

BOSTON Gear Works, 152 Purchase St., Boston, Mass.

BULTMAN, F. H., & Co., 131 Viaduct, Cleveland, O.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page 111).

DETROIT Screw Works, Detroit, Mich.

FELLOWS Gear Shaper Co. (The), Springfield, Vt.

NEW Process Rawhide Co., Syracuse, N. Y.

NUTALL, R. D., Co., Fayette St. and Garrison Way, Pittsburg, Pa.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

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HORSBURGH & Scott Co., Cleveland, O.

MUNSON, Chas., Belt Co., 88 Franklin St., Chicago, Ill.

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DAYTON Electrical Mfg. Co., Dayton, Ohio.

EDDY Electric Mfg. Co. (The), Windsor, Conn.

ELBRIDGE Electric Co., Elbridge, N. Y.

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MILWAUKEE Electric Co., Milwaukee, Wis.

NEW England Motor Co., Lowell, Mass.

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

SPRAGUE Electric Co., 527 W. 34th St., N. Y. City.

STERLING Electric Motor Co., Dayton, O.

THERMO-Electric Generator Co., 45 E. 42d St., N. Y. City.

WAGNER Electrical Mfg. Co., St. Louis, Mo.

WESTINGHOUSE Co., 10 Bridge St., N. Y. City.

WRIGHT, Thomas, Co. (The), 406-410 Grand St., Jersey City, N. J.

GLOVES AND GAUNTLETS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

CLARK Glove Co., Peabody, Mass. (see page opposite).

CROSBY, Frisian, Fur Co., 116 Mill St., Rochester, N. Y.

DEMMERLE & Co., 248 W. 23d St., N. Y. City.

DETROIT Leather Specialty Co., Detroit, Mich. (see page opposite).

EISENDRATH Glove Co., Armitage and Elston Ave., Chicago, Ill.

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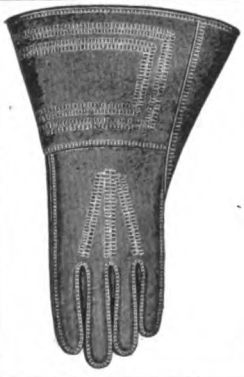

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FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

HANSEN, O. C., Mfg. Co., 356 E. Water St., Milwaukee, Wis. (see page 65).

HEAGLE, James, Cor. First Ave. and Market St., Johnstown, N. Y.

KIBBE, C. S., Batavia N. Y.

LILLEY, M. C., & Co., Columbus, O.

MESINGER, H. & F. Mfg. Co., 1801-1803 First Ave., N. Y. City.

MORAWETZ Co. (The), Milwaukee, Wis.

MORRISON, McIntosh & Co., 63 Broad St., Grinnell, Ia. (see page 65).

PONTIAC Knitting Co., Pontiac, Mich.

POPE Mfg. Co., Hartford, Conn. (Dealers & Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

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SYRACUSE & Elbridge Gloves Co., 924 S. Salina St., Syracuse, N. Y.

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GONGS (See Bells)

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HOLMES Fibre Graphite Co., 5155 Wakefield St., Philadelphia, Pa.

NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.

OBERMAYER Co. (The) S., Cincinnati, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

UNITED States Graphite Co., Saginaw, E. S., Mich.

WISCONSIN Graphite Co., Allegheny, Pa.

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BESLEY & Co., C. H., Chicago, Ill.

COLUMBIA Lubricants Co. of New York, 78 Broad St., New York (see page 93).

DOWNING Grease Co., 14 Waltham St., Boston, Mass.

EAGLE Oil and Supply Co., 104 Broad St., Boston, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.

KELLOGG, E. H. Co., 243-244 South St., New York City.

KEYSTONE Lubricating Co., 20th and Allegheny Ave., Philadelphia, Pa.

MILLER'S Sons, Wm. P., 100 Greenpoint Ave., Brooklyn, N. Y.

NATIONAL Cement and Rubber Mfg. Co., Toledo, O.

N. Y. and N. J. Lubricant Co., 14 Church St., New York City (see page 35).

PHILA. Grease Mfg. Co., The Bourse, Philadelphia, Pa.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.

SULLIVAN Oil Co., Chicago, Ill.

WISCONSIN Graphite Co., Allegheny, Pa.

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AMERICAN Injector Co., Detroit, Mich.

AMERICAN Lubricator Co., Detroit, Mich.

BOWEN Mfg. Co., Auburn, N. Y. (see page 79).

DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.

ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

LUNKENHEIMER Co. (The), Cincinnati, O.

TUCKER, W. W. & C. F., Hartford, Conn.

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BAILIE Basket Co., 85 Hudson St., Boston, Mass.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BOSTON Mat & Basket Co., 62 Fulton St., Boston, Mass.

BURLINGTON Basket Co., Burlington, Ia.

CHICAGO Willow & Rattan Works, 424-26 Blue Island Ave., Chicago, Ill.

CURADO Willow Ware Co., 1524 Frankford Ave., Philadelphia, Pa.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FONTAINE, R. A., 342 Gratiot Ave., Detroit, Mich.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

HEYWOOD Bros. & Wakefield Co., 174 Portland St., Boston, Mass.

KEYSTONE Willow Mfg. Co., 700 Green St., Philadelphia, Pa.

MYERS & Alexander, 239 E. 27th St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

POUGHKEEPSIE Art Pulp Co., 110 Mill St., Poughkeepsie, N. Y.

RATTAN Mfg. Co., 522 State St., New Haven, Conn.

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RANLET Automobile Co., St. Johnsbury, Vt.

WHITLOCK Coil Pipe Co., Hartford, Conn. (see page 69).

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MORAN Flexible Steam Joint Co., Louisville, Ky.

TURNER Brass Wks., Michigan and Franklin Sts., Chicago, Ill.

WALLACE, W. M., 616 18th St., N. W., Washington, D. C.

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ENGLISH & Mersick Co., New Haven, Conn.

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POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

RUMPP & Sons, C. F., Philadelphia, Pa.

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DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

FEDDERS, Mfg. Co., Buffalo, N. Y. (see page 101).

HAYES Mfg. Co. (The), Detroit, Mich.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 17).

KINSEY Mfg. Co., Dayton, O. (see page 23).

LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.

LONG-Turney Mfg. Co., Rome, N. Y.

MAYO Radiator Co. (The), New Haven, Conn. (see page 99).

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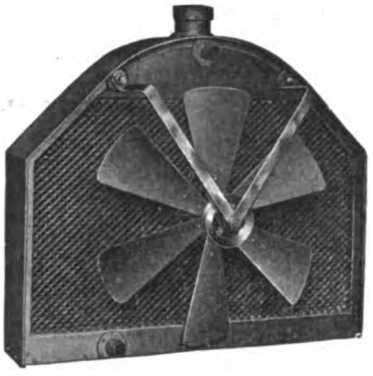

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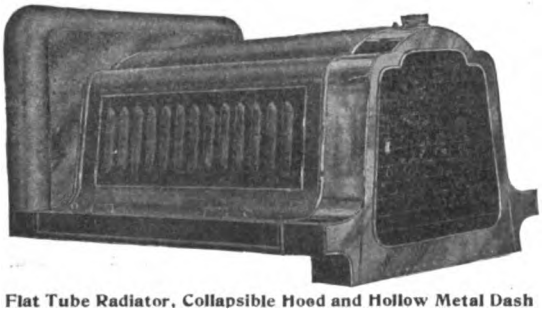

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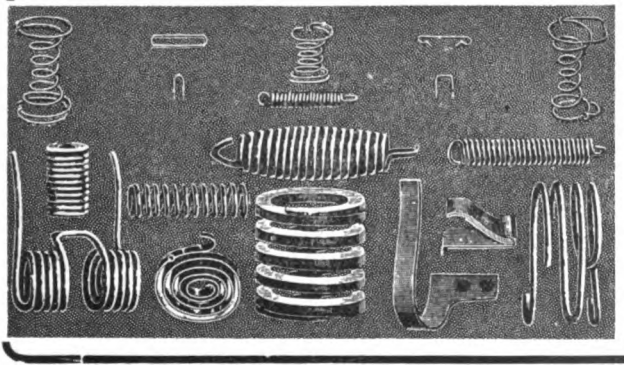

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EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

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FUNKE, A. H., 83 Chambers St., New York.

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McPHILLIPS Horn Mfg. Co., 255 Jefferson Ave., Detroit, Mich.

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O'BRIEN Electrophone Co., Augusta, Me.

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POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

RILEY-Klotz Mfg. Co., Newark, N. J.

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MERSHON & Morley, Saginaw, Mich.

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WATERMANN-Hunter Co., 515 1st Ave. So., N. E., Minneapolis, Minn.

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AJAX Wheel & Gear Co., 44 Beekman St., N. Y. City.

AMERICAN Ball Bearing Co., Cleveland, O.

AMERICAN Roller Bearing Co., South Framingham, Mass.

AUBURN Ball Bearing Co., Crane Bldg., Auburn, N. Y.

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CLEVELAND Hub Co., Cleveland, O.

COLLMER Bros., 105 Vistula Ave., South Bend, Ind.

GARFORD Co. (The), Elyria, O. (see page 9).

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

HESS-Bright Mfg. Co., 619 Penna. Bldg., Philadelphia, Pa.

I. C. A. Hub Co., Keene, N. H.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

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TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

WESTON-Mott Co., Utica, N. Y.

HUB CAPS

CROSBY Co. (The), Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

WORCESTER Pressed Steel Co., Worcester, Mass.

HUB FLANGES

CROSBY Co. (The), Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

WORCESTER Pressed Steel Co., Worcester, Mass.

HYDROMETERS

ADAMS, A. L., 45 Salem St., Worcester, Mass.

AMERICAN Thermo-ware Co., 16 Warren St., New York.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GREINER, Emil, 78 John St., New York, N. Y.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Importers) (see page 19).

SCIENTIFIC Shop (The), 1230 Monon Bldg., Chicago, Ill.

TAYLOR Bros. Co., Rochester, N. Y.

VUILLE, Chas. A., Huntingdon, Pa.

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

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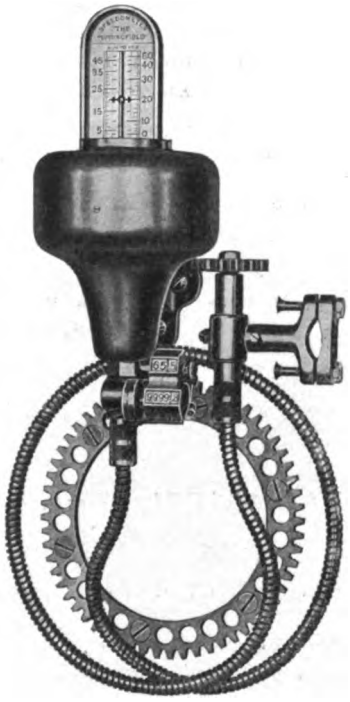

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FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

HICKS Speed Indicator Co., 1384 Bedford Ave., Brooklyn, N. Y.

HOFFECKER Speed & Mile Register Co., Park Sq. Motor Mart, Boston, Mass.

JONES, J. W., 127 W. 32d St., N. Y. City.

LORING, E. J., Somerville, Mass.

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MONITOR Speed Recorder Co., 274 Pearl St., Cambridge, Mass.

MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

SMITH Manufacturing Co., R. H., Springfield, Mass. (see page 73).

SPEED Indicator Co. (The), 415 N. W. Bldg., Minneapolis, Minn.

Veeder Mfg. Co., Hartford, Conn.

WARNER Instrument Co., 52 Roosevelt Ave., Beloit, Wis. (see page 11).

WEBB Co. (The), 1679 Broadway, N. Y. City.

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ANDERSON Pole & Shaft Co., Anderson, Ind.

AUTOBED Co. (The), Boston, Mass. (Automatic Lift).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

AUTO. Supply Co., Binghamton, N. Y.

BARTH Mfg. Co., Milwaukee, Wis.

BATAVIA Clamp Co., Batavia, N. Y.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

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GARLICK Auto. Prop. Co., Madison Ave. and Broadway, Paterson, N. J.

GLOBE Jack Co., Philadelphia, Pa.

JERSEY Brake Co., 93 Green St., Newark, N. J.

LOCKHART, W. J., 28 Beach St., Boston, Mass.

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OLIVER Mfg. Co., 213 So. Desplaines St., Chicago, Ill.

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POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

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SHAW Engineering & Mfg. Co., Newark, N. J.

SHAWVER Co., Springfield, O.

SMITH & Heminway, 296 Broadway, N. Y. City.

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BLOOD Bros. Auto. & Mach. Co., Kalamazoo, Mich.

CALDWELL-Wilcox Co., Newbury, N. Y.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).

COATES Clipper Mfg. Co., Worcester, Mass

HARTFORD Auto Parts Co., Hartford, Conn.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

LAIB Co., Louisville, Ky.

LEHMAN, I., 61 Middle St., Cleveland, O.

MORAN Flexible Joint Co., 149 3d St., Louisville, Ky.

MUTUAL Machine Co., Hartford, Conn.

SPICER Universal Joint Mfg. Co., Plainfield, N. J.

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CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DAKIN, B. E., 219 Bond Bldg., Washington, D. C.

DOUGLAS & Lomason Co., Detroit, Mich. (see page 53).

KELLY Handle Bar Co., Cleveland, O.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 51).

SMITH & Co., Jos., Fourth and Porter Sts., Detroit, Mich.

STANDARD Welding Co., Cleveland, O.

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IMPERIAL Brass Mfg. Co., 251 So. Jefferson Ave., Chicago, Ill. (see page 71).

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GILBERT Mfg. Co., 70-80 Center St., New Haven, Conn. (see page 51).

LONDON Auto Supply Co., 1229 Michigan Ave., Chicago, Ill. (see page 119).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 19).

WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 19).

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 51).

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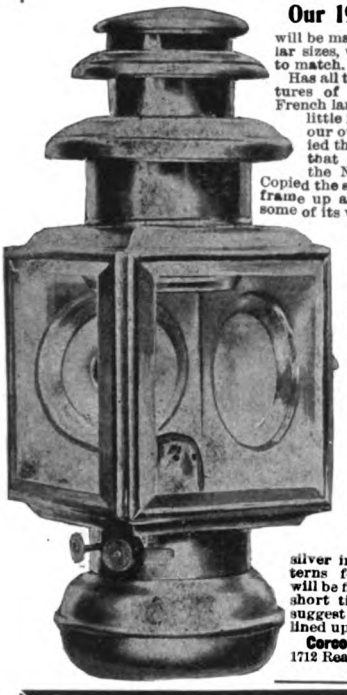

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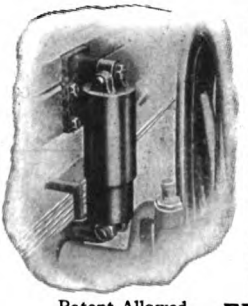

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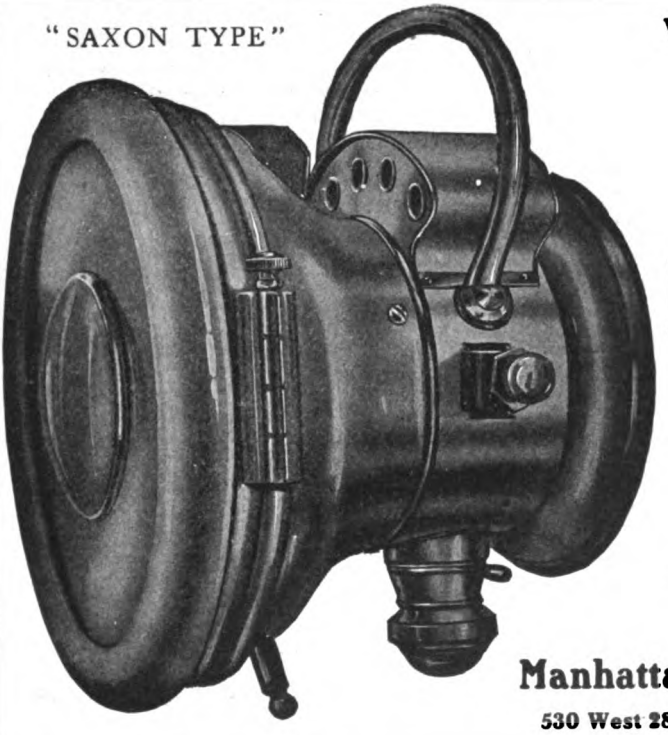

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CHICAGO Auto Lamp Works, 71 W. Jackson Blvd., Chicago, Ill.

COLT Co., J. B., 21 Barclay St., N. Y. City.

CORCORAN Lamp Co. (The), 1712 Reading Rd., Cincinnati, O. (see page 77).

COWLES, C., & Co., New Haven, Conn.

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EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

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GRAY & Davis, Amesbury, Mass.

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POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

PYLE Mfg. Co., 2211 Park Ave., Indianapolis, Ind.

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CLEVELAND Tanning Co. (The), Jennings and Dennison Ave., Cleveland, O.

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LEVERS (Hand)

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KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

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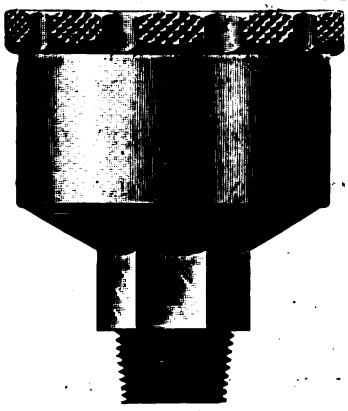

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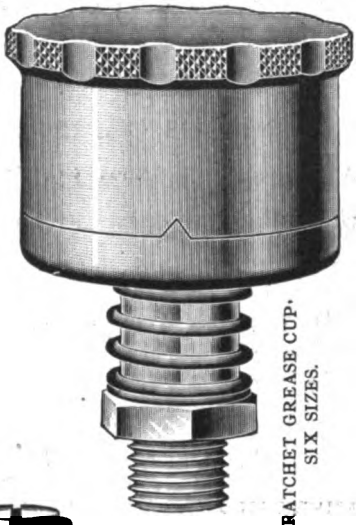

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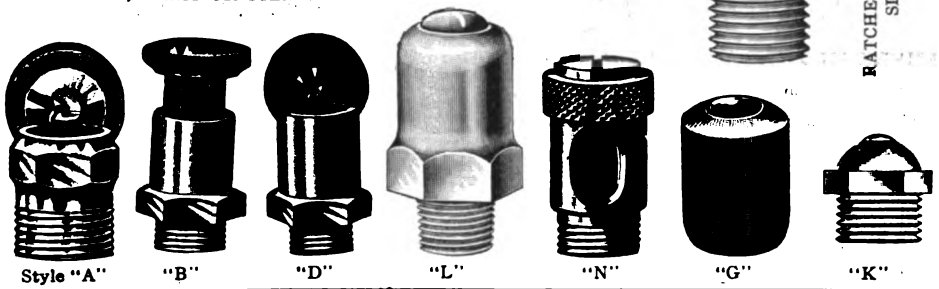

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CHARTER Mfg. Co., 59 Clark St., Chicago, Ill.

DETROIT Lubricator Co., 12 Hodges Bldg., Detroit, Mich.

DODGE Lubricator Co., 8 Waltham St., Boston, Mass.

ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.

FRASSE Co. (The), 38 Cortlandt St., N. Y. City.

GREENE, Tweed & Co., 17 Murray St., N. Y. City.

HANCOCK Inspirator Co. (The), 85 Liberty St., N. Y. City.

HANCOCK Mfg. Co., 140 E. Erie St., Chicago, Ill. (see opposite page).

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

IMPERIAL Brass Mfg. Co. (The), 245-247 So. Jefferson St., Chicago, Ill. (see page 71).

KINSEY Mfg. Co., Dayton, O. (see page 23).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

LAVIGNE Mfg. Co., 123 E. Larned St., Detroit, Mich.

LEE Injector Co. (The), Port Huron, Mich.

LUNKENHEIMER Co. (The), Cincinnati, O.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

M'RAE & Roberts Co., Detroit, Mich.

MADISON-Kipp Mfg. Co., Madison, Wis.

MICHIGAN Lubricator Co., 661 Beaubien St., Detroit, Mich.

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SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.

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BEAMAN & Smith Co. (The), Providence, R. I.

BROWN & Sharpe Mfg. Co., Providence, R. I.

BULLARD Mach. Co., Bridgeport, Conn.

CINCINNATI Electric Tool Co., 650-652 Evans St., Cincinnati, O.

CINCINNATI Milling Machine Co., Cincinnati, Ohio.

FELLOWS Gear Shaper Co. (The), Springfield, Vt.

FIELD Co., Chas. H., 230 Chestnut St., Providence, R. I.

FITCHBURG Machine Wks., Fitchburg, Mass.

FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.

GARDAM & Son, Wm., 45-51 Rose St., New York.

GARVIN Machine Co., Spring & Varick Sts., New York.

GEOMETRIC Tool Co., Westville Sta., New Haven, Conn.

GISHOLT Machine Co., Madison, Wis.

HARTFORD Machine Screw Co., Hartford, Conn.

HEALD Machine Co. (The), Worcester, Mass.

HILL, Clarke & Co., 156 Oliver St., Boston, Mass.

HISEY-Wolf Machine Co., Cincinnati, O.

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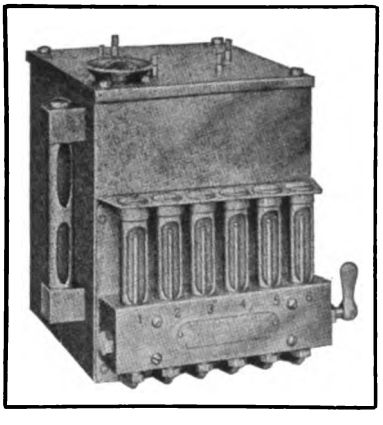

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POTTER & Johnston Machine Co., Pawtucket, R. I.

PRATT & Whitney Co. (The), Hartford, Conn.

PRENTISS Tool & Supply Co., 115 Liberty St., N. Y. City.

SPRINGFIELD Mach. Tool Co., Springfield, Ohio.

STANDARD Tool Co., Cleveland, Ohio.

STEPTOE Shaper Co. (The), Jno., Cincinnati, O.

VON WYCK Machine Tool Co., Cincinnati, Ohio.

WHITNEY Mfg. Co., Hartford, Conn.

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AMERICAN Machine Mfg. Co., Cleveland, O.

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 111).

HATCHER Auto Parts Co. (The), Viaduct, Cleveland, O. (see page 3).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

LEE Mfg. Co. (The), Port Huron, Mich.

LONG Arm System Co., Cleveland, O.

RHODE Island Machine Co. (The), Providence, R. I.

MAGNETOS (See Igniting Devices)

MAPS (Road)

MENDENHALL, C. S., Race St. and Opera Pl., Cincinnati, O. (see page opposite).

OFFICIAL Automobile Blue Book, Flatiron Bldg., N. Y. City (see page 75).

SURVEY Map Co., 41 Lafayette Pl., N. Y. City.

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BOSTON Woven Hose Co., Cambridge, Mass.

DIAMOND Rubber Co., Akron, O.

EMPIRE Rubber Co., Trenton, N. J.

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GOSHEN Rubber Works, Goshen, Ind.

HARTFORD Rubber Works Co., Hartford, Conn.

MANHATTAN Rubber Co., 18 Vesey St., N. Y. City.

MONARCH Rubber Co., 41 N. 7th St., Philadelphia, Pa.

NEW JERSEY Car Spring & Rubber Co., Wayne & Brunswick Sts., Jersey City, N. J.

PEERLESS Rubber Mfg. Co., 16 Warren St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

VICTOR Rubber Co. (The), Springfield, O.

METALS (Babbitt)

ADVANCE Mfg. Co., Todd Bldg., Kalamazoo, Mich.

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 39).

COLUMBIA Smelting & Refining Co., 307 Water St., N. Y. City.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

MAGNOLIA Metal Co., 113-115 Bank St., N. Y. City.

MUZZY-Lyon Co. (The), Detroit, Mich.

NEW Era Mfg. Co. (The), Kalamazoo, Mich.

PHOSPHOR-Bronze Smelting Co. (The), Ltd., 2200 Washington Ave., Phila., Pa.

REEVES, Paul S., & Son, 1415 Catherine St., Phila., Pa.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 41).

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

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ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 39).

ANSONIA Brass & Copper Co., Ansonia, Conn.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CHICAGO Brass Co., Kenosha, Wis.

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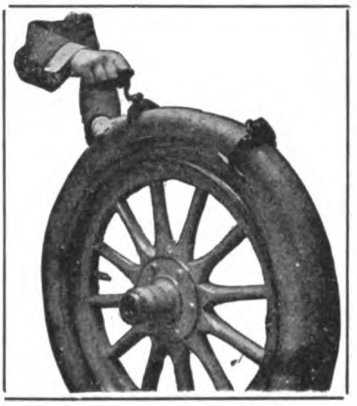

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No. 1. To fit any tire up to 3½ inches
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HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

NEW HAVEN Copper Co., New Haven, Conn.

RANDOLPH-Clowes Co., Waterbury, Conn.

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AITCHISON Perforating Co., 303 Dearborn St., Chicago, Ill.

HARRINGTON & King Perforating Co., 236 N. Union St., Chicago, Ill.

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AMERICAN Mica Mining & Milling Co., Cuyahoga Falls, O.

ASHEVILLE Mica Co., Asheville, N. C.

CAROLINA Locust Pin & Mica Co., Franklin, N. C.

CHICAGO Mica Co., Valparaiso, Ind.

MICA Insulator Co., New York and Chicago.

MICA Manufacturing Co., New York, N. Y.

MUNSELL, Eugene, & Co., 218 Water St., N. Y. City.

NORTH Carolina Mica Co., Boston, Mass.

SCHOONMAKER, A. O., 221 Fulton St., N. Y. City.

SILLS-Eddy Mica Co., Newark, N. J.

VANCE, D. T., Plumtree, N. C.

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FINE, Horace E., Trenton, N. J.

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FT. WAYNE Electric Works, Ft. Wayne, Ind.

GENERAL Electric Co., Schenectady, N. Y.

GILMORE Electric Co., 625 First St., Boston, Mass.

HERTNER Electric Co., Cleveland, O.

KENDRICK & Davis, Lebanon, N. H.

LAMB & Co., Kent & Lyons Sts., Grand Rapids, Mich.

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MERRIAM-Abbot Co., 60 E. Prospect St., Cleveland, O.

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PARSELL & Weed, 129-131 W. 31st St., N. Y. City

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

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STERLING Electric Motor Co., Dayton, O.

STOREY Motor & Electric Co., 321 Sussex St., Harrison, N. J.

WAGNER Electrical Mfg. Co., St. Louis, Mo.

WESTINGHOUSE Elec. & Mach. Co., Pittsburg, Pa.

MOTORS (Gasoline Auto)

BADECKER Gas Engine Co., Omaha, Neb.

BEAVER Mfg. Co., Barclay & Oregon Sts., Milwaukee, Wis. (see page 87).

BEILFUSS Motor Co. (The), E. Saginaw St., Lansing, Mich.

BEVERLY Mfg. Co., Beverly, Mass.

BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.

BRENNAN Motor Co., Syracuse, N. Y.

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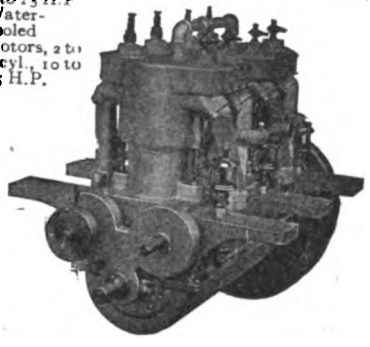

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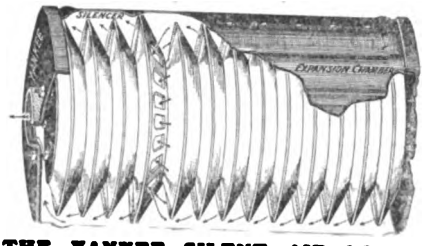

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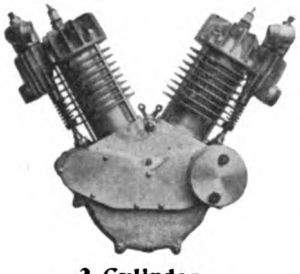

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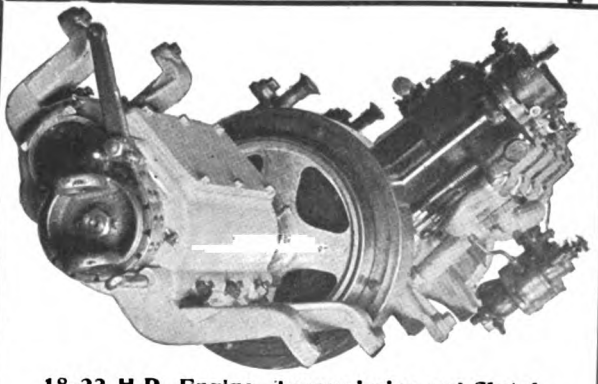

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DAVIS Mfg. Co., 935 30th St., Milwaukee, Wis.

DURYEA Power Co., Reading, Pa.

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FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.

GRANT-Ferris Co., Troy, N. Y.

GOSHEN Motor Works, Goshen, Ind.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

HOMAN, J. & E., 380 West Broadway, N. Y. City.

HUBBARD Motor Co., Middletown, Conn.

ILLINOIS Auto & Parts Co., Globe & Main Sts., Peoria, Ill.

KAESTNER Mfg. Co., Chas., South Bend, Ind.

KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 85).

LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.

LOWELL Model Co., Lowell, Mass.

LOZIER Motor Co., Plattsburgh, N. Y.

M'FARLAND Foundry & Machine Works, Trenton, N. J.

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MERKEL Motor Co., 1095 26th Ave., Milwaukee, Wis.

MILWAUKEE Auto Engine & Supply Co., 706-708 Winnebago St., Milwaukee, Wis.

MILWAUKEE Motor Co., 615 Clybourn Ave., Milwaukee, Wis.

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MOHLER & DeGress, 390 Webster Ave., Long Island City, N. Y.

MOTOR Car Power Equipment Co., rear 577 Grove St., Milwaukee, Wis.

MURRAY, W. B., 1253 Milwaukee Ave., Chicago, Ill.

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NORTH Chicago Mach. Co. (The), North Chicago, Ill.

O. K. Gas Engine Works, Winchester, O.

OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.

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PIERCE Engine Works, Racine Junction, Wis.

ROCHESTER Die Shaper Co., Rochester, N. Y.

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SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.

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STERLING Engine Co., 119 Grant St., Buffalo, N. Y.

STREIT Machine Co., A., 1108-10 Harrison Ave., Cincinnati, O.

STROBEN, John, 1416 W. Locust St., Davenport, Ia.

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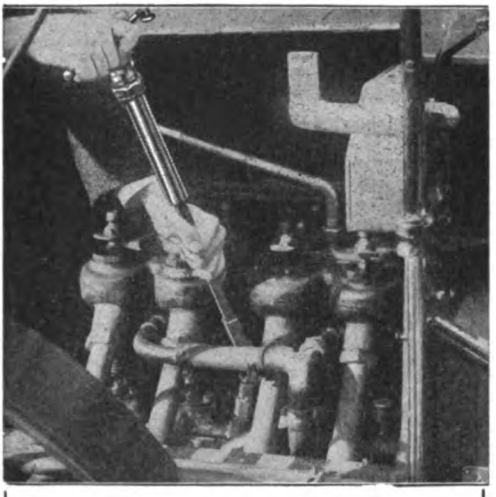

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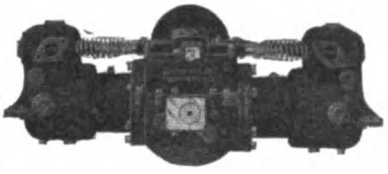

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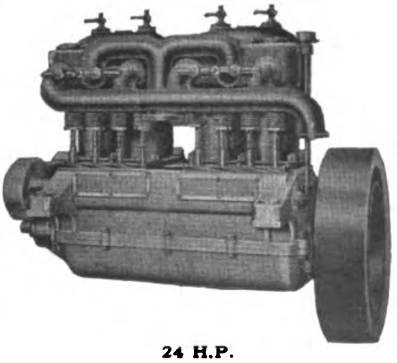

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HUBBARD Motor Co., Middletown, Conn.

KAHLENBERG Bros., Two Rivers, Wis.

KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 85).

KOWALSKY Engine Co. (The), J., Verona, Pa.

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PIGGINS Bros., Racine, Wis.

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ROCHESTER Gas Engine Co., 705 Driving Park Ave., Rochester, N. Y.

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TREBERT Gas Engine Co., 263 W. Main St., Rochester, N. Y.

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WESTERN Gas Engine Co., Michigan City, Ind.

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BUFFALO Gasoline Motor Co., Niagara St., Buffalo, N. Y.

DIESEL Motor Co., 11 Broadway, N. Y. City.

FRANTZ Mfg. Co., Cherryville, Pa.

INTERNATIONAL Power Vehicle Co., 216 Pacific St., Stamford, Conn.

MIETZ, A., 128 Mott St., N. Y. City.

NEW YORK Kerosene Oil Motor Co. (The), 31 Burling Slip, New York, N. Y.

ST. ANNE Kerosene Motor Co., St. Anne, Ill. see page opposite).

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A-Z Co. (The), 462 11th Ave., N. Y. City.

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BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.

BYRNE, Kingston & Co., Kokomo, Ind.

BUCHNER Co., Albert, 911 So. Homan Ave., Chicago, Ill.

CHAMPION Mfg. Co., 9-15 Alling St., Newark, N. J.

GRAY-Hawley Mfg. Co., 605-609 Fort St., W., Detroit, Mich.

HATCHER Auto Parts Co., 140 Viaduct, (see page 3).

HAYES Mfg. Co., Detroit, Mich.

HAYNEY, Geo. F., Lynn, Mass.

W. J. KELLS Mfg. Co., Jersey City, N. J. (see page 17).

KINSEY Mfg. Co., Dayton, O. (see page 23).

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MOTOR & Mfg. Works Co., Ithaca, N. Y.

ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.

SMITH & Co., D. B., Utica, N. Y. (see page 85).

TURNER Brass Works, Chicago, Ill.

WEEBER, C. F., Mfg. Works, 255 Sherman St., Albany, N. Y.

WESTERFIELD Motor Co., Anderson, Ind.

WESTERN Motor Co., Logansport, Ind.

MUFFLERS (Neck)

SCOTT Muffler Co. (The), Portsmouth, O. (see opposite page).

WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

NAME PLATES

ABBOTT, W. H., 1263 Broadway, N. Y. City.

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 39).

ALUMINUM Mfg. Co., Two Rivers, Wis.

ATWOOD Mfg. Co., Amesbury, Mass.

BALTIMORE Enamel & Novelty Co., Baltimore, Md.

BECKER, August, 247 Atlantic Ave., Boston, Mass.

BLACKINGTON & Co., V. H., Attleboro Falls, Mass.

BOYLE & Co., John, 112-114 Duane St., N. Y. City.

CHANDLER Co., (The), 31 Taylor St., Springfield, Mass.

CHILDS, S. D. & Co., 200 So. Clark St., Chicago, Ill.

CROWE Metal Mfg. Co., Chicago, Ill.

DETROIT Rubber Stamp Co., 99 Griswold St., Detroit, Mich.

EASTWOOD Wire Mfg. Co., Belleville, N. J.

ENGLISH & Mersick Co., New Haven, Conn.

FINE, Horace E., Trenton, N. J.

GREACEN & Co., Walter, 12 Mechanic St., Newark, N. J.

IMPERIAL Brass Mfg. Co., 207 So. Jefferson St., Chicago, Ill. (see page 71).

MEYERCORD Co. (The), Chamber of Commerce, Chicago, Ill.

MORSE, C. H., & Son., 13 So. Water St., Rochester, N. Y.

MURDOCK Corporation, Boston, Mass.

MURDOCK, Jas., Jr., Co., 116 Opera Place, Cincinnati, O. (see page 51).

N. J. Aluminum Co., Newark, N. J.

NEW YORK Stencil Works, New York, N. Y.

QUINT, S. H., & Sons, 15 So. 4th St., Philadelphia, Pa.

REES, F. H., Steele Memorial Bldg., Elmira, N. Y.

ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.

ROGERS, C. E., 34 Beach St., Boston, Mass.

SMITH, R. H., Mfg. Co. (The), Springfield, Mass. (see page 73).

SPENCER'S Sons, I. S., Guilford, Conn.

STAFFORD Co., N., 67 Fulton St., New York.

TORREY Roller Bushing Works, Bath, Me.

TURNER Brass Works (The), Franklin & Michigan Sts., Chicago, Ill.

WADSWORTH Engraving Co., 21 W. Washington St., Springfield, O.

WALTER, N. C., & Sons, 194 William St., N. Y. City.

NIPPLES

CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.

HARTFORD Machine & Screw Co., 476 Capitol Ave., Hartford, Conn.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

JUDD & Leland Mfg. Co., Clifton Springs, N. Y.

PARK City Brass Co., Springfield, Mass.

PARKER, E. N., Springfield, Mass.

SHRIMPTON Mfg. Co., Church St., N. Y. City.

STANDARD Spoke & Nipple Co., Torrington, Conn.

STEVENS & Co., New York, N. Y.

TILEY-Pratt Co. (The), Essex, Conn.

TOLEDO Metal Wheel Co., Toledo, O.

YOUSE, E. S., Reading, Pa.

NUTS AND WASHERS (Lock)

ALLISON Mfg. Co., Philadelphia, Pa.

AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.

COLUMBIA Nut & Bolt Co., Bridgeport, Conn.

EUREKA Nut Lock Co., Pittsburg, Pa.

MICHIGAN Bolt and Nut Co., Detroit, Mich.

NATIONAL Elastic Nut Co., Milwaukee, Wis.

NATIONAL Lock Washer Co., Newark, N. J. (see page 125).

POSITIVE Lock Washer Co., Newark, N. J.

SPIRAL Nut Lock Co., New York, N. Y.

ODOMETERS (See Indicators—Speed and Distance)

OILS

ALEXANDER & Co., H. T., 17 State St., N. Y. City.

AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.

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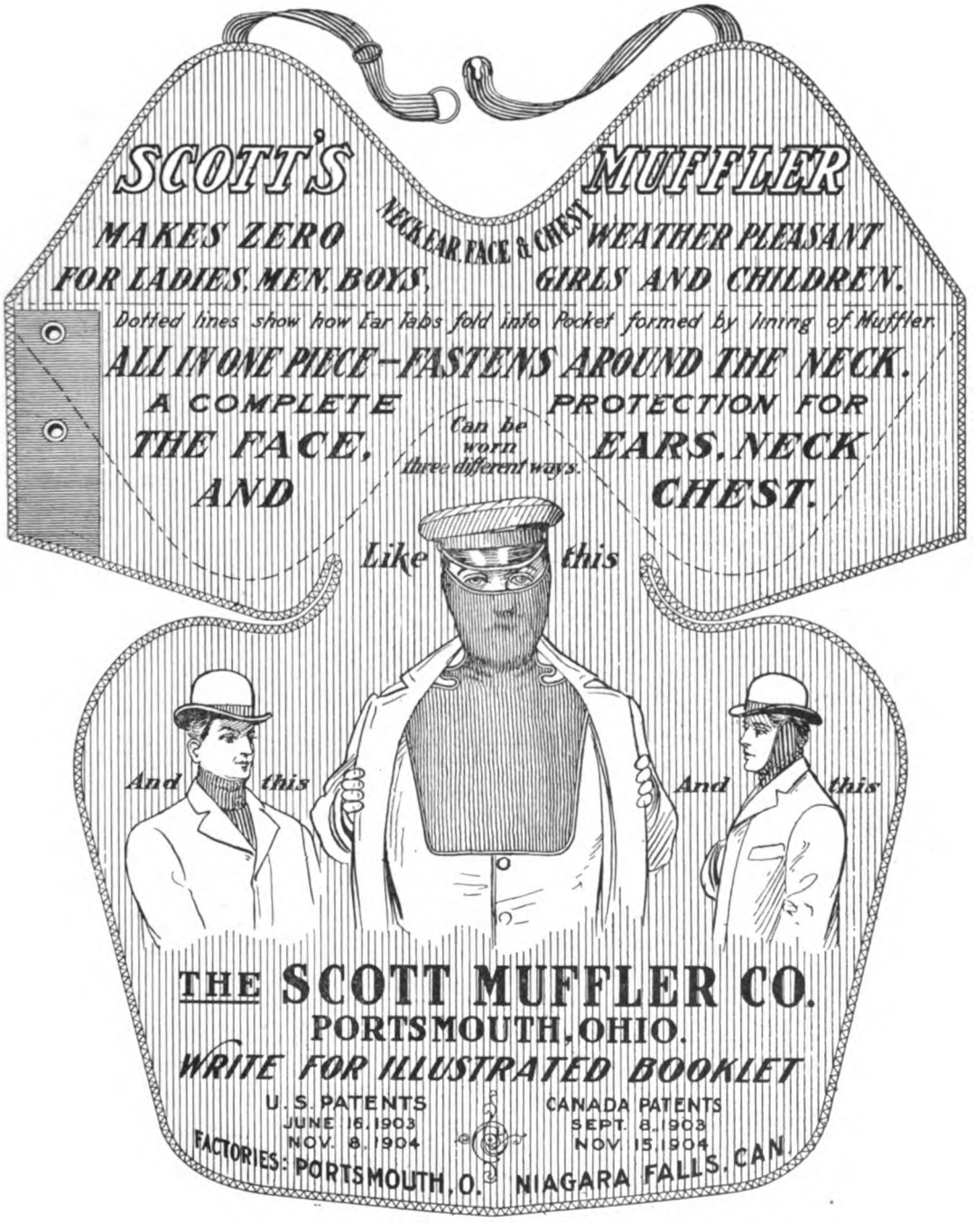

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AUTOMOBILE Equipment Co., 203 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BESLY & Co., C. H., Chicago, Ill.

BORNE-Scrymser Co., Claremont, N. J.

BRUCK Solidified Oil Co., 256 Dover St., Boston, Mass.

CHAMPION Oil Co., Chicago, Ill.

CHESTERTON & Co., A. W., 64 India St., Boston, Mass.

CHILDS Co., G. B. (The), 499 Greenwich St., N. Y. City.

CLARK, E. W., & Co., 89 New Chambers St., N. Y. City.

COLE, G. W. Co., 141 Broadway, N. Y. City.

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).

CURRY Oil & Supply Co., Boston, Mass.

DEARBORN Drug & Chemical Works, Chicago, Ill.

DIXON, Jos., Crucible Co., Wayne & Monmouth Sts., Jersey City, N. J.

EMERY Mfg. Co., 41 Main St., Bradford, Pa.

Excelsior Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FISKE Bros. Refining Co., 59 Water St., N. Y. City.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GALENA Signal Oil Co., Franklin, Pa.

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HAVEMEYER Oil Co., 78 Broad St., N. Y. City.

HOFFMAN Lubricating Oil Co., Binghamton, N. Y.

HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.

KANTER Co., R. J., 647 Water St., N. Y. City.

KELLOGG, E. H., Co., 243-244 South St., N. Y. City.

KELLOM & Co., Chas. F., 128 Arch St., Philadelphia, Pa.

LUBRON Mfg. Co., 89 Broad St., Boston, Mass.

MACLEAN Oil & Supply Co., 463 Atlantic Ave., Boston, Mass.

MAGIE Bros., 9-11 No. Canal St., Chicago, Ill.

MARION Mfg. Co., Franklin, Pa.

MILLER'S Sons, Wm. P., 100 Greenpoint Ave., Brooklyn, N. Y.

MONARCH Mfg. Co., Toledo, O.

NATIONAL Cement & Rubber Mfg. Co. 3053-59 Monroe St., Toledo, O.

N. Y. & N. J. Lubricant Co., 15 Church St., N. Y. City (see page 35).

NYE, Wm. F., New Bedford, Mass.

O-U-T-O Co. (The), 19 Camfield St., Newark, N. J.

PENN Oil & Supply Co., Chicago, Ill.

PENN. Petroleum Co., 117 N. 2d St., Philadelphia, Pa. (see page 67).

PHILADELPHIA Grease Mfg. Co., Philadelphia, Pa.

PIGOT, Sayre & Co., 135 William St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

PULVER & Sons, Peter, N. Y. City.

RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.

RICHARDSON Lubricating Co., Quincy, Ill.

ROBINSON, Son & Co., Wm. C., Baltimore, Md.

ROYAL Lub. Oil Co., 116 Broad St., N. Y. City.

ROYAL Oil Co., 2 Platt St., N. Y. City.

SPEAR'S Sons Co., The Alden, 369 Atlantic Ave., Boston, Mass.

STANDARD Oil Co., 26 Broadway, N. Y. City.

STAR Lubricating Co., N. Y. City.

STERLING Oil Co., Emlenton, Pa.

SWAN & Finch Co., 151 Maiden Lane, New York.

UNDERHAY Oil Co., 275 Franklin St., Boston, Mass.

VACUUM Oil Co., Rochester, N. Y.

VALVOLINE Oil Co., N. Y. City.

VISCOSITY Oil Co., Chicago, Ill.

WADHAMS Oil & Grease Co., Milwaukee, Wis.

WINN, F. R., Co., 147 Maiden Lane, N. Y. City.

YOUNG, O. W., Newark, N. J.

OILS (Non-Fluid, Non-Liquid)

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).

N. Y. and N. J. Lubricant Co., 14 Church St., New York (see page 35).

OIL CANS

AKRON Mfg. Co., 927 S. Hight St., Akron, O.

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

BROWN Oil Can Co., Toledo, O.

GEM Mfg. Co., Pittsburg, Pa.

MANUFACTURERS Can Co., Mulberry and South Sts., N. Y. City.

MAPLE City Mfg. Co., Monmouth, Ill.

MOSHER, M. E., Rochester, N. Y. (see page 125).

NOERA Mfg. Co., Waterbury, Conn.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

SAFETY Oiler Co., 65 Nassau St., N. Y. City.

SCOVILL Mfg. Co., Waterbury, Conn.

SMITH, S. W., Keithsburg, Ill.

WILSON & Co., F. Cortes, 247 Lake St., Chicago, Ill. (see page 115).

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OIL CUPS

AURORA Automatic Mach. Co., Aurora, Ill.

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y. (see page 77).

DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.

DURYEA Power Co., Reading, Pa.

ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.

LUNKENHEIMER Co. (The), Cincinnati, O.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers (see page 15).

SHERWOOD Mfg. Co., Buffalo, N. Y.

STAR Brass Mfg. Co., 108-14 E. Dedham St., Boston, Mass.

TUCKER, W. W. & C. F., Hartford, Conn.

WINKLEY Co. (The), Detroit, Mich.

OIL GUNS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page 93).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GLEASON-Peters Air Pump Co., 20 West Houston St., New York.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

N. Y. and N. J. Lubricant Co., 15 Church St., New York (see page 35).

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

RANDALL-Faichney Co., Boston, Mass. (see page 71).

OIL-HOLE COVERS

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y. (see page 79).

BOWN Machine Works, Battle Creek, Mich.

TUCKER W. W. & C. F., 302 Asylum St., Hartford, Conn.

WINKLEY Co. (The), Detroit, Mich.

OIL PUMPS

BOSTON Auto Exch., 173-177 Berkeley St., Boston, Mass.

BOWEN Mfg. Co., Auburn, N. Y. (see page 79).

DETROIT Lubricator Co., Hodges Bldg., Detroit, Mich.

ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 71).

LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.

MADISON-Kipp Mfg. Co., Madison, Wis.

MANZEL Bros. 46-48 Broadway, N. Y. City.

M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 79).

SHERWOOD Mfg. Co., Buffalo, N. Y.

SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.

STAR Brass Mfg. Co., 108-114 E. Dedham St., Boston, Mass.

PACKING

AMERICAN Steam Packing Co., Boston, Mass.

BOOTH, N. E., 261 39th St., Boooklyn, N. Y. (see page 31).

BOSTON Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.

CHESTERTON & Co., A. W., 64 India St., Boston, Mass.

CHICAGO Rawhide Mfg. Co., 75-77 Ohio St., Chicago, Ill.

EAGLE Oil & Supply Co., 104 No. Broad St., Boston, Mass.

GOULD Packing Co., 88 E. Cambridge St., E. Cambridge, Mass.

GREENE, Tweed & Co., 17 Murray St., N. Y. City.

JOHNS-Manville, H. W., Co., 100 William St., N. Y. City.

KEASBEY, Robert A., 83 Warren St., N. Y. City.

KEASBY-Mattison Co., Ambler, Pa.

N. J. Asbestos Co., Camden, N. J.

PAINTS

ACME White Lead & Color Works, Detroit, Mich.

BERRY Bros., Ltd., Detroit, Mich. (see front cover).

BILLINGS-Chapin Co. (The), Cleveland, O.

BRANT, Randolph, 38 Cortlandt St., N. Y. City.

BUFFALO Enamel & Stain Co., Buffalo, N. Y.

DETROIT White Lead Works, Detroit, Mich.

DITZLER Paint & Color Works, 14 Baltimore Ave., West Detroit, Mich.

FELTON, Sibley & Co., 136-140 No. 4th St., Philadelphia, Pa.

FOWLER Elastic Enamel Paint Co., 589 W. Lake St., Chicago, Ill.

MASURY & Son, John W., 44-50 Jay St., Brooklyn N. Y.

PATTERSON-Sargent Paint Co., Cleveland, Ohio.

SCHRACK, C., & Co., 152 No. 4th St., Philadelphia, Pa.

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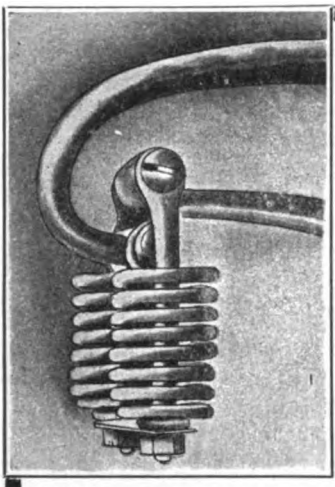

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Gentlemen—Your Supplementary Springs are giving entire satisfaction on the automobile used by myself in responding to fire calls. The most noticeable effect is that they permit my car to maintain its speed over car crossings and granite block streets with full comfort to the occupants. Yours truly, (Signed) C. E. SWINGLEY,
Chief Fire Department.

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Supplementary Spiral Spring Co., City: Nov. 9, 1904.

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Lengthen Life of Engine
Prolong Wear of Tires
Nothing to Break or Wear Out

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They adjust to any make car and add to its durability, speed and riding qualities as nothing else can. Cost price refunded if springs prove unsatisfactory after thirty days' use.

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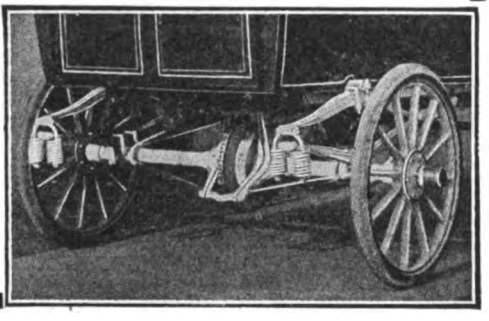

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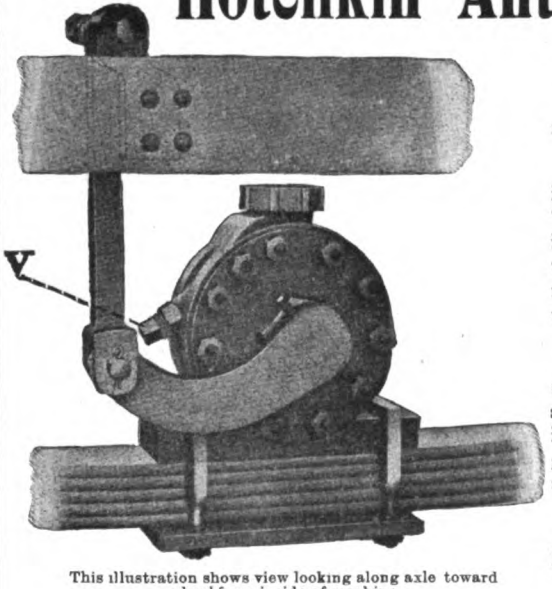

This illustration shows view looking along axle toward wheel from inside of machine

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It is a hydraulic device, and works in one direction only—on the recoil The natural compression of the springs is not checked, but the recoil IS effectually checked, thus making the tonneau a place of comfort instead of a torture-chamber.

It prevents jolting, broken springs and **injury** to the **spines** of the **passengers.** By reducing the vibrations, it secures better traction, higher speed, greater life of tires and stronger nerves and better temper for the motorist.

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STANDARD Varnish Works, 29 Broadway, N. Y. City.

VALENTINE & Co., 257 Broadway, N. Y. City.

PANELS (Wood)

AMERICAN Veneer Co., Kenilworth, N. J.

BOTHNER Hardwood Moulding Co., 1945 Park Ave., N. Y. City.

DANN Bros. Co. (The), 80 Franklin St., New Haven, Conn.

OHIO Scroll & Lumber Co., Covington, Ky.

PANS (Drip)

DOVER Stamping & Mfg. Co., 385 Putnam Ave., Combridge, Mass.

PATTERN MAKERS

BALKWILL Pattern Works, 970 Hamilton St., Cleveland, O.

GARDAM & Son, Wm., 45 Rose St., N. Y. City.

HARTFORD Pattern & Model Co., Inc. (The), 14 Hicks St., Hartford, Conn.

HOPSON-Chapin Mfg. Co., New London, Conn.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

MEISEL Press & Mfg. Co., 944-948 Dorchester Ave., Boston, Mass.

MODEL Pattern Works, Washington and Perry Sts., Buffalo, N. Y.

OLMSTEAD, H. B. Co., 663 Manhattan Ave., Brooklyn, N. Y.

PARSELL & Weed, 129-131 W. 31st St., N. Y. City.

STANDARD Pattern Works, Detroit, Mich.

PATTERN PLATES

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 51).

PIPE (Wrought Iron and Steel)

BYERS & Co., A. M., Pittsburg, Pa.

CONSHOHOCKEN Tube Co., Conshohocken, Pa.

CRANE Co., Chicago, Ill.

HARRISBURG Pipe & Pipe Bending Co., Harrisburg, Pa.

LA BELLE Iron Works, Steubenville, O.

MARK Mfg. Co., Evanston, Ill.

NATIONAL Tube Co., New York, N. Y.

READING Iron Co., Reading, Pa.

SHELBY Steel Tube Co., Pittsburg, Pa.

SOUTH CHESTER Tube Co., Chester, Pa.

SPANG, Chalfant & Co., Pittsburg, Pa.

UNITED STATES Tube & Iron Co., Pittsburg, Pa.

WESTERN Tube Co., Kewanee, Ill.

YOUNGSTOWN Iron, Steel & Tube Co., Youngstown, O.

PIPE COILS

BLISS-Chester Co., Providence, R. I.

NATIONAL Pipe Bending Co., New Haven, Conn.

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 69).

PISTON RINGS

HAGUE & Co., 6123 Penn Ave., E. Pittsburg, Pa.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

PLATINUM

AMERICAN Platinum Works, Newark, N. J.

BAKER & Co., 408 N. J. R. R. Ave. Newark, N. J.

CROSELMIRE Co., C. F., 251 N. J. R. R. Ave., Jersey City, N. J.

GOLDSMITH Bros., Chicago, Ill.

PLIERS AND NIPPERS (See Tools)

POLISHES (Body and Metal)

AMER. Metal Polish Co., 89 Winslow Ave., W. Somerville, Mass.

ARMSTRONG & Co., Kalamazoo, Mich. (see page opposite).

BRIGHTON Chemical Co. (The), 1220 George St., Chicago, Ill. (see page 87).

BUFFALO Enamel & Stain Co., 481 Ellicott Sq., Buffalo, N. Y.

BUFFALO Specialty Co. 3751-77 Ellicott St., Buffalo, N. Y.

COLE, G. W. Co., 143 Broadway, New York City.

CROSS, W. H., 18 Franklin St., Brooklyn, N. Y.

EAGLE Mfg. Co., 383 Prospect St., Cleveland, Ohio.

GRAMLICH Chemical Co., 167 Leverett St., Detroit, Mich.

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HASSLER Co., Owen C., 1543 Milwaukee Ave., Chicago, Ill. (see page opposite).

HINDS & Coon, 128 Pearl St., Boston, Mass.

HOFFMAN, Geo. W., 551 E. Washington St., Indianapolis, Ind.

LEAVITT, Gilbert, 11 India St., Boston, Mass.

LORD Polish Co., F. T., Cambridge, Mass.

LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.

MAGIE Bros., 9-11 N. Canal St. Chicago, Ill

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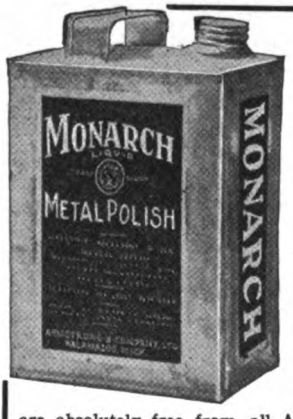

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NEWBERN Co., S. C., 430 Walnut St., Philadelphia, Pa.

ORIENT Mfg. Co., 141 Milk St., Boston, Mass. (see page 33).

PAUL, J. C., & Co., 59 Dearborn St., Chicago, Ill. (see page 97).

RAIMES & Co., 50 Ferry St., N. Y. City (see page 97).

RATH Mfg. Co., 1023 N. 3d St., Philadelphia, Pa.

ROYAL Polish Co., 301 W. 63d St., Chicago, Ill.

SPEAR'S Sons Co., Aiden, (The), 369 Atlantic Ave., Boston, Mass.

PORCELAIN (Insulators)

AMERICAN Lava Co., Chattanooga, Tenn.

BISHOP Gutta-Percha Co., 425 E. 25th St., New York City.

BRUNT Porcelain Works, G. F., E. Liverpool, O.

IMPERIAL Porcelain Works (The), Trenton, N. J.

MASSACHUSETTS Chemical Co., 170 Summer St., Boston, Mass.

PASS & Seymour, Syracuse, N. Y.

STANDARD China Works, Trenton, N. J.

STAR Porcelain Co., Trenton, N. J.

STATE Line Mfg. Co., Chattanooga, Tenn.

STEWART, D. M., Mfg. Co., Chattanooga, Tenn., and 107 Chambers St., N. Y. City.

SUN-LIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

PRESSED STEEL PRODUCTS

CROSBY Co. (The), 185 Pratt St., Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

KINSEY Mfg. Co., Dayton, O. (see page 23).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

PARISH & Bingham, Cleveland, O.

SMITH Co., A. O., Milwaukee, Wis.

WORCESTER Pressed Steel Co., Worcester, Mass.

PUMPS (Fuel, Air)

AMERICAN Steam Pump Co., Battle Creek, Mich.

BOSTON Auto Exchange, 173 Berkeley St., Boston, Mass.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.

CLEVELAND Faucet Co. (The), Cleveland, Ohio.

LEATHER and Brass Mfg. Co., Auburn, N. Y.

REASON Automatic Air Pump Co., Pontiac, Mich.

RUMSEY & Co., Seneca Falls, N. Y.

SHAFFER Machine & Mfg. Co. (The), 211 No. Calvert St., Baltimore, Md.

UNION Steam Pump Co., Battle Creek, Mich.

PUMPS (Boiler)

AMERICAN Steam Pump Co., Battle Creek, Mich.

BLAKE Steam Pump Co., 356 Arborway, Jamaica Plain, Mass.

KILBURN, Edwin, Spring Valley, Minn.

NOERA Mfg. Co., Waterbury, Conn.

OFELDT Motor Works, Nyack-on-the-Hudson, N. Y.

UNION Steam Pump Co., Battle, Creek, Mich.

PUMPS (Circulating)

AMER. Mach. & Mfg. Co., Cleveland, O.

AUTO & Power Appliance Co. (The), Cleveland, O.

BIEDERMAN, C., 1555 Knox St., Cincinnati, Ohio.

BRENNAN Motor Co., Syracuse, N. Y.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 101).

BROWN & Sharpe Mfg. Co., Providence, R. I.

BYRNE, Kingston & Co., Kokomo, Ind.

ESSEX Brass Co., G. B., Detroit, Mich.

GARVIN Machine Co., Spring & Varick Sts., N. Y. City.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 71).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

LIPMAN, Carl E., Beloit, Wis.

LOBEE Pump & Machinery Co., 133-141 Terrace, Buffalo, N. Y.

McCORD & Co., 1700 Old Colony Bldg., Chicago, Ill. (see page 79).

MILWAUKEE Motor Co., Milwaukee, Wis.

MOHLER & De Gress, Long Island City, N. Y.

N. Y. Gear Wks., Brooklyn, N. Y.

PELTON Gas. Eng. Wks., Lyons, Ia.

ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.

STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 81).

TORBENSEN Gear, Inc., Bloomfield, N. J.

WESTERFIELD Motor Co. (The), Anderson, Ind.

PUMPS, OIL (See Oil Pumps)

PUMPS (Tire Inflators)

ARTIZAN Bros. Co., 116 Michigan St., Chicago, Ill.

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New Haven, Conn.

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AUTO Pump Co., Springville, N. Y.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BELL, D. M., Franklin and Michigan Sts., Chicago, Ill. (see page 71).

BRIDGEPORT Brass Co., Bridgeport, Conn.

BROWN-Lipe Gear Co., Syracuse, N. Y. (see page 63).

CHRISTENSEN, N. A., 1212-1217 Herman Bldg., Milwaukee, Wis.

CLEVELAND Faucet Co., Cleveland, O.

CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.

COLONIAL Brass Co. (The), 316-318 Seneca St., Cleveland, O.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GARAGE Equipment Co., Milwaukee, Wis.

GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 71).

JUDD & Leland, Clifton Springs, N. Y.

LEATHER & Brass Mfg. Co., Auburn, N. Y.

MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

MILLER Mfg. Co., Peekskill, N. Y.

MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.

NOERA Mfg. Co., Waterbury, Conn.

PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

SKINNER & Skinner, 5642 Indiana Ave., Chicago, Ill.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

STEVENS & Co., 99 Chambers St., N. Y. City. (Jobbers).

TILEY-Pratt Co. (The), Essex, Conn.

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

WRAY Pump & Register Co., Rochester, N. Y.

PUMP CONNECTIONS (Tire Valve)

GOODRICH, B. F., Co., Akron, Ohio.

JUDD & Leland Mfg. Co., Clifton Springs, N. Y.

KELLOGG, G. W., 9 Belmont St., Rochester, N. Y.

PARK City Brass Co., Springfield, Mass.

PARKER, E. N., 293 Main St., Springfield, Mass.

SCHRAEDER Sons, A., N. Y. City.

STEVENS & Co., 99 Chambers St., N. Y City.

YOUSE, E. S., 46 N. 5th St., Reading, Pa.

RADIATORS

BLISS Chester Co., 31 Mathewson St., Providence, R. I.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page opposite).

DETROIT Auto Specialty Co., Detroit, Mich. (see page 69).

DIAMOND Stamped Ware Co., Detroit, Mich.

FEDDERS Mfg. Co., Buffalo, N. Y. (see page opposite).

HAYES Mfg. Co., Detroit, Mich.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 17).

KINSEY Mfg. Co., Dayton, O. (see page 23).

LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.

LONG-Turney Mfg. Co., Rome, N. Y.

MAYO Radiator Co., New Haven, Conn. (see page 99).

MOTOR Components Mfg. Co., 119-121 E. Walnut St., Des Moines, Iowa.

STOLP Mfg. Co., Huron & Townsend Sts., Chicago, Ill. (see page 69).

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 69).

WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

RIMS (Steel)

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

BRYANT Steel Wheel & Rim Co., 454 Hayden Bank Bldg., Columbus, O.

CONTINENTAL Caoutchouc Co. (The), 43 Warren St., N. Y. City (Importers) (see page 5).

CRAMP, James, 85 Summer St., E. Boston, Mass.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

KELLY, Maus & Co., Lake St. Bridge, Chicago, Ill.

MIDGLEY Mfg. Co., Columbus, O.

STANDARD Welding Co. (The), 35 Cone St., Cleveland, O.

WESTON-Mott Co., Utica, N. Y.

RIMS (Wood)

DRAKE Mfg. Co., Milwaukee, Wis.

HAGERSTOWN Spoke & Bending Co., Hagerstown, Ind.

JONES & Co., Phineas, Newark, N. J. (see page 125).

K. & C. Mfg. Co., Henicker, N. H.

RASTETTER, Louis, & Son, Ft. Wayne, Ind.

TUCKER Bicycle Woodwork Co. (The), Sidney, O.

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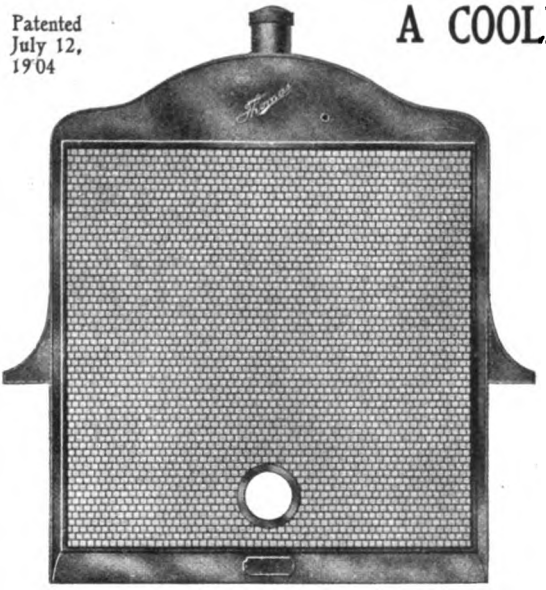

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ROBES (Auto)

AMER. Buffalo Robe Co., Buffalo, N. Y.

CHASE Co., L. C., Boston, Mass. (see page 111).

CHICAGO Auto Robe Supply Co., 155-159 Market St., Chicago, Ill.

DAVIS Robe Co., Inc., 1307 Champlain Bldg., Chicago, Ill.

DRAPER Bros., Canton, Mass.

GAUSLER & Starr, Philadelphia, Pa.

MORAWETZ Co. (The), Milwaukee, Wis.

PARSONS Buggy Top Co., Chicago, Ill.

PIONEER Woolen Mills, Beaufort St. and North Gratiot Ave., Detroit, Mich.

RILEY, Wm. B., & Son, 324-26 Market St., Philadelphia, Pa.

WESTERN Robe Co., Detroit, Mich.

RODS (Brass and Copper)

CHICAGO Brass Co., Kenosha, Wis.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

RANDOLPH-Clowes Co., Waterbury, Conn.

RODS (Distance)

GARFORD Co. (The), Elyria, O. (see page 9).

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

RUBBER CLOTH

CARR, F. S., 74 Pearl St., Boston, Mass. (see page opposite).

CHASE Co., L. C., Boston, Mass. (see page 111).

EMPIRE Rubber Mfg. Co., Trenton, N. J.

HARTFORD Rubber Works Co., Hartford, Conn.

LANDERS Bros. Co., Toledo, O. (see page opposite).

MANUFACTURERS Selling Co. (The), 1777 Broadway, N. Y. City.

MASS. Chemical Co., 170 Summer St., Boston, Mass.

MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page opposite).

WESTERN Rubber Co., Goshen, Ind.

RUNNING GEARS

BORBEIN & Co., H. F., St. Louis, Mo.

GARFORD Co. (The), Elyria, O. (see page 9).

MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.

NEUSTADT Auto. & Supply Co., 826 S. 18th St., St. Louis, Mo.

SMITH Co., A. O., Milwaukee, Wis.

TOWANDA Motor Vehicle Co., Towanda, Pa.

TORBENSON Gear Inc. 615 Bloomfield Ave., Bloomfield, N. J.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

SCREWS

ATLAS Bolt & Screw Co., Cleveland, O.

BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

DETROIT Screw Works, Detroit, Mich.

HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.

KIRK-Latty Co., Cleveland, O.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

NATIONAL Screw & Tack Co., Cleveland, O.

NEW Britain Hdw. Mfg. Co. (The), New Britain, Conn.

PENINSULAR Milled Screw Co., Detroit, Mich.

PROGRESSIVE Mfg. Co., Torrington, Conn.

UPSON Bolt & Nut Co., Cleveland, O.

WATERBURY Mfg. Co., Waterbury, Conn.

WESTERN Automatic Machine Screw Co. (The), Elyria, O.

SCREW MACHINE PRODUCTS

CHICAGO Screw Co., Chicago, Ill.

DETROIT Screw Works, Detroit, Mich.

HARTFORD Mach. Screw Co., Hartford, Conn.

HATCHER Auto Parts Co. (The), Cleveland, O. (see page 3).

ILLINOIS Screw Co., Chicago, Ill.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

NATIONAL Cycle Mfg. Co., Bay City, Mich.

PENINSULAR Milled Screw Co., Detroit, Mich.

WORCESTER Mach. Screw Co., Worcester, Mass

SEATS (Auto)

AMERICAN Veneer Co., Kenilworth, N. J.

AVERY Stamping Co., Cleveland, O.

BEAUDETTE & Co., J., Detroit, Mich.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

DANN Bros. Co. (The), 80-88 Franklin St., New Haven, Conn.

DAYTON Folding Tonneau Co., Dayton, O.

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

FELLWOCK Roll & Panel Co. (The), Evansville, Ind.

FRANTZ Body Mfg. Co. (The), Akron, O.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

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MICH. Auto. & Carriage Body Co., Detroit, Mich.

RATTAN Mfg. Co., New Haven, Conn.

WHIPPLE, R. W., Binghamton, N. Y.

SEATS (Dos-a-Dos)

HALLIDAY, C. A., Oneida, N. Y.

INDIANAPOLIS Dash Co., Indianapolis, Ind.

RANDS Mfg. Co., Detroit, Mich.

SCHUBERT Bros. Gear Co., Oneida, N. Y.

WHIPPLE, R. W., Binghamton, N. Y.

SHELLS (Boiler, Copper)

HUNGERFORD Brass & Copper Co., New York, N. Y.

RANDOLPH-Clowes Co., Waterbury, Conn.

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PRESSED Steel Tank Co., Milwaukee, Wis.

STANDARD Welding Co., Cleveland, O.

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AMERICAN Shock Absorber Co., Easton, Pa.

BALDWIN Chain & Mfg. Co., Worcester, Mass.

CHANEY Mfg. Co., A., Terre Haute, Ind.

DETROIT Steel Products Co., Detroit, Mich. (see back cover).

DIEZEMANN Shock Absorber Co., 1311 Hudson St., Hoboken, N. J.

GABRIEL Horn Mfg. Co., 974 Hamilton St., Cleveland, O.

GODSHALK & Co., E. H., Philadelphia, Pa.

HARTFORD Suspension Co., 67 Vestry St., N. Y. City.

HOTCHKIN, P. M., 4018 Lake Ave., Chicago, Ill. (see page 95).

INDIANAPOLIS Bolster Spring Co., Indianapolis, Wis.

KILGORE Auto Air Cushion Co., 46 1-2 Columbus Ave., Boston, Mass. (see page 77).

OIL Tempering Spring Co., Chicopee Falls, Mass.

SAGER Co., J. H., Rochester, N. Y.

SHEDDAN Mfg. Co., Baltimore, Md.

STACHL & Co., L. E., 262 W. 43d St., N. Y. City.

SUPPLEMENTARY Spiral Spring Co., 4528-4530 Delmar Ave., St. Louis, Mo. (see page 95).

VESTAL Shock Absorber Co., 5917 Baum St., E. E., Pittsburg, Pa.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WERNER Car Imp. Co., 110 W. 34th St., N. Y. City.

SOAPS (Special for Automobilists)

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BAUM'S Castorine Co., Rome, N. Y.

CLEANOLA Co. (The), Allegheny, Pa.

ERICKA Mfg. Co., Inc., Springfield, Mass. (see page 31).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill., (Dealers and Jobbers) (see page 21).

FISK Mfg. Co., Springfield, Mass.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

HASSLER Co., Owen C., 1543 Milwaukee Ave., Chicago, Ill. (see page 97).

HYDRO-PALM Soap Co., 22 Minott St., Neponsett, Mass. (see page opposite).

JERGENS Co. (The), Andrew, Cincinnati, O.

KIRK & Co., Jas. S., Chicago, Ill.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

ROME Soap Mfg. Co., Rome, N. Y.

SKAT Mfg. Co., Hartford, Conn.

STANLEY, John T., 636 W. 30th St., N. Y. City (see page opposite).

UTILITY Co. (The), 233 Greenwich St., N. Y. City.

WALTKE & Co., Wm., Grand and 2d St., St. Louis, Mo.

SPARK COILS

AMERICAN Coil Co., Foxboro, Mass.

AMERICAN Machine Mfg. Co., East Braintree, Mass.

ASTORIA Auto Coil Co., 472 14th Ave., Astoria, Long Island, N. Y. (see page 109).

AUTOCOIL Co. (The), 132 7th St., Jersey City, N. J.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BYRNE-Kingston Co., Kokomo, Ind.

CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DAYTON Electrical Mfg. Co., Dayton, O.

DOW Portable Electric Co., Braintree, Mass.

DUPLEX Coil Co., Fond-du-Lac, Wis.

ELBRIDGE Electrical Co., Elbridge, N. Y.

ELECTRIC Contract Co., 202 Centre St., N. Y. City.

ENGLAND, A. E., Amesbury, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FAULKNER-Mills Co., New Bedford, Mass.

FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GEEN Electric Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.

HARDY Co., R. E., New York, N. Y.

HEINZE Electric Co., Lowell, Mass. (see page 107).

INDUCTION Coil Co., 106 Wisconsin St., Milwaukee, Wis. (see page 113).

KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.

NATIONAL Coil Co., Lansing, Mich. (see page 109).

NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 113).

NEW York Coil Co., 52-54 Park Pl., N. Y. City.

NOXON, C. Per Lee, 500 E. Water St., Syracuse, N. Y.

NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O. (see page 27).

PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 107).

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POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

PROVIDENCE Spark Coil Co., Providence, R. I.

ROCHE, Wm., 52 Park Pl., N. Y. City.

RUBAY, Leon, 136 W. 38th St., New York (Importers).

RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.

SCHUG Electric Co. (The), Detroit, Mich.

SEIDLER-Miner Electric Co., Detroit, Mich, (see page 113).

SPLITDORF, C. F., 27 Vandewater St., New York (see page 109).

TRITT Electrical Mfg. Co., Union City, Ind.

U. S. Coil Co., Jersey City, N. J.

VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.

WILLIAMS, E. Q., 533 S. Clinton St., Syracuse, N. Y.

SPARK GAPS

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.

SPARK PLUGS

ALBRIGHT Mfg. Co., Inc., Columbus, Ga.

AMERICAN Coil Co., Foxboro, Mass.

AMERICAN Machine Mfg. Co., East Braintree, Mass.

ARC Spark Mfg. Co., 125 W. 32d St., N. Y. City.

ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.

ATLANTIC Motor Supply & Screw Co., 48 Binford St., Boston, Mass.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

AUTOMOBILE Supply Co., 1339 Michigan Ave., Chicago (Importers).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BYRNE, Kingston Co., Kokomo, Ind.

CHARTER Mfg. Co., 303 Dearborn St., Chicago, Ill.

CANEDY, Earl, Chicago Heights, Ill.

CLIMAX Igniter Co., Amesbury, Mass.

DAYTON Electrical Mfg. Co. (The), Dayton, O.

DE LUXE Mfg. Co., Buffalo, N. Y.

DOW Portable Electric Co., Braintree, Mass.

ELBRIDGE Electrical Mfg. Co., Elbridge, N. Y.

ENGLAND, A. E., Amesbury, Mass.

EXCELSIOR Spark Plug Co., Cleveland, O.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).

FAULKNER-Mills Co., New Bedford, Mass.

FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.

FOURFORONE Spark Plug Co., 23 E. Lake St., Chicago, Ill.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

GILBOUGH, B. G., 36 La Salle St., Chicago, Ill.

GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.

HARDY Co., R. E., 225 West Broadway, N. Y. City.

HOLCOMB & Co., 18 E. 28th St., N. Y. City.

ILLINOIS Roofing & Supply Co., 23 Lake St., Chicago, Ill.

INDUCTION Coil Co., Milwaukee, Wis. (see page 113).

KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.

LIPMAN, Carl E., Beloit, Wis.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 79).

MECHANICAL Plug Co., 3926 Olive St., St. Louis, Mo.

MEZGER, C. A., Inc., 203 W. 80th St., N. Y. City (see page 5).

MOSLER, A. R., Co., 1679 B'way, N. Y. City.

NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 113).

OAKES & Dow Co., 40 Sudbury St., Boston, Mass.

ORSWELL Ignition Co. (The), 102 Pearl St., Boston, Mass.

PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page opposite).

POPE Mfg. Co., Hartford, Conn. (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

PROVIDENCE Spark Coil Co., Providence, R. I.

RAJAH Auto. Supply Co., 140 Washington St., New York.

REX Motor Co., 69 Woodward Ave., Detroit, Mich.

RICHARDSON Engineering Co., Hartford, Conn.

ROCHE, Wm., 52 Park Pl., N. Y. City.

RUBAY, Leon, 136 West 38th St., New York (Importer).

SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 113).

SPLITDORF, C. F., 27 Vandewater St., New York (see page 109).

THURSTON Mfg. Co. (The), 356 E. 57th St., Chicago, Ill.

TRITT Electrical Mfg. Co., Union City, Ind.

U. S. Coil Co., 60 Harrison Ave., Jersey City, N. J.

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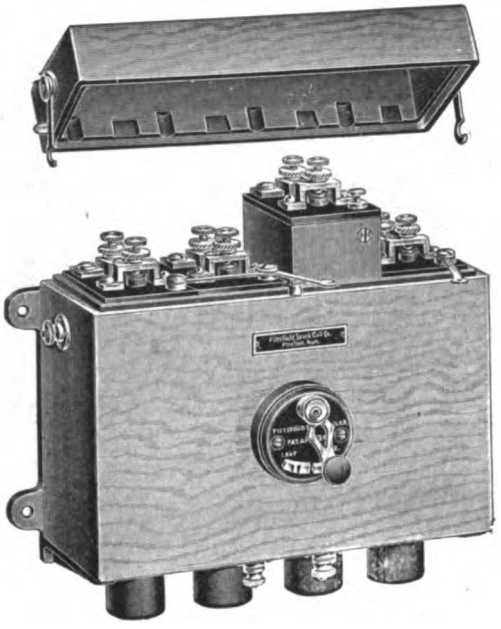

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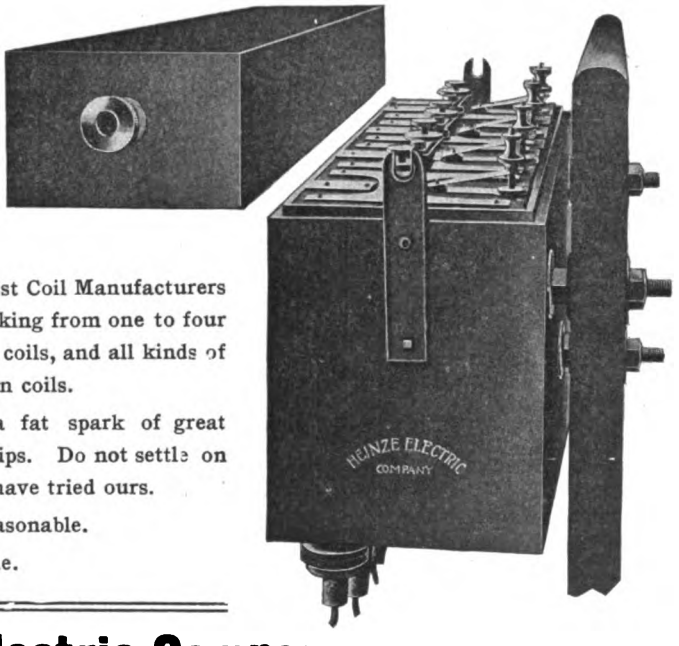

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BOKER & Co., Herman, 101 Duane St., N. Y. City.

CROSELMIRE, Chas. F., Co., 251 N. J. R. R. Ave., Newark, N. J.

SPARK TIMING DEVICES

ALTEMUS & Co., C. L., 15th & Market Sts., Philadelphia, Pa.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

AUTO Instrument Co., 228 No. 4th St., Phila., Pa.

AUTO & Power Appliance Co. (The), Cleveland, O.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).

BEMUS, Alton T., 294 Washington St., Boston, Mass.

BURTT Mfg. Co., Kalamazoo, Mich.

CAMBRIA Mfg. Co. (The), 41 Columbus Ave., Boston, Mass.

CROUSE-Hinds Co., Syracuse, N. Y.

DAYTON Electrical Mfg. Co., Dayton, O.

DODGE Lubricator Co., 8 Waltham St., Boston, Mass.

DOMINICK & Co., Wm., 243 Michigan Ave., Chicago, Ill.

DOW Portable Electric Co., Braintree, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 21).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).

FULMER, C. F., Plainfield, N. J.

HAWKINS Mfg. Co., 508 Atlantic Ave., Boston, Mass.

HEINZE Electric Co., Lowell, Mass. (see page 107).

ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.

MILWAUKEE Auto. Eng. & Supply Co., 706 Winnebago St., Milwaukee, Wis.

MONITOR Speed Recorder Co., 274 Pearl St., Cambridge, Mass.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

POWELL Mfg. Co. (The), Clinton, N. Y.

UNCAS Specialty Co., 31 Shipping St., Norwich, Conn.

WESTERN Motor Co., Logansport, Ind.

SPECIAL PARTS (See Machine Work to Order)

SPEED INDICATORS (See Indicators, Speed and Distance)

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ANSTED Spring & Axle Co., Connersville, Ind.

ARMSTRONG Mfg. Co. (The), J. B., Flint, Mich.

CLEVELAND-Canton Spring Co., Canton, Ohio.

COOPER, Geo., & Co., Cleveland, O.

DELANEY, D., & Son, Liberty and Hamilton Sts., Newark, N. J.

DETROIT Steel Products Co., 87-89 Fort St. (see inside back cover).

GARDEN City Spring Works, Chicago, Ill.

HESS-Pontiac Spring and Axle Co., Pontiac, Mich.

KALAMAZOO Spring & Axle Co., Kalamazoo, Mich.

KEYSTONE Spring Wks., 13th and Buttonwood Sts., Phila., Pa.

LEWIS Spring and Axle Co., Jackson, Mich.

PALMER, Jos., 333 Rutherford Ave., Boston, Mass.

PENN Spring Wks., Baldwinsville, N. Y.

ROWLANDS, Wm. & Harvey, Frankford, Phila., Pa.

RYMAN Co., K. L., 164 Market St., Newark, N. J.

SHULER, Davis W., & Son, Amsterdam, N. Y.

SPRING Perch Co., 232 John St., Bridgeport, Conn.

TROY Spring Works, 394-96 Congress St., Troy, N. Y.

TUTHILL Spring Co., 215 W. Polk St., Chicago, Ill.

SPRINGS (Cushion and Machinery)

AMERICAN Steel & Wire Co., Chicago, Ill.

BARBER Mfg. Co., Anderson, Ind.

CARY Spring Works, 240 W. 29th St., N. Y. City.

CLEVELAND Wire Spring Co., Cleveland, Ohio.

D'ARCY Spring Co., 115 Main St., Kalamazoo, Mich.

DETROIT Wire Spring Co., 295 Congress St., W., Detroit, Mich.

GIBSON Co., Wm. D., Huron and Kingsbury Sts., Chicago, Ill. (see page 69).

HEBB, George A., Newark, N. J.

HUBBARD Spring Co., M. D., Pontiac, Mich.

INDEPENDENT Steel & Wire Co., House Bldg., Pittsburg, Pa.

JACKSON Cushion Spring Co., Water St., Jackson, Mich. (see page 125).

LOUNSBERY & Sons, G. H., 214-216 E. 4th St., Cincinnati, O.

MILLER & Van Winkle, 18 Bridge St., Brooklyn, N. Y.

MORGAN Spring Co., Worcester, Mass.

NATIONAL Spring & Wire Co., Albion, Mich.

RAYMOND Mfg. Co., Corry, Pa.

STAPLES & Hanford, Newburg, N. Y.

THOMPSON, F. H., 36-38 Elm St., Portland, Me.

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BALDWIN Chain & Mfg. Co., Worcester, Mass.

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.

BOSTON Gear Wks., 152 Purchase St., Boston, Mass.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page opposite).

FORG, Peter, Park St., Somerville, Mass.

GARFORD Co. (The), Elyria, O. (see page 9).

GRANT Gear Wks., 6 Portland St., Boston.

NELSON, A., Mfg. Co., 67-69 So. Canal St., Chicago, Ill.

PARISH & Bingham Co., Hamilton St., Cleveland, O.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

SPRINGFIELD Drop Forging Co., 187 Pratt St., Buffalo, N. Y.

STAMPINGS

BAY State Stamping Co., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y. (see page 79).

CROSBY Co. (The), 185 Pratt St., Buffalo, N. Y.

DAVIS & Buxton, Worcester, Mass.

DIAMOND Stamped Ware Co., Detroit, Mich.

EATON, Cole & Burnham, 253 B'way, N. Y. City.

FORG, Peter, Park St., Somerville, Mass.

FORSYTH Mfg. Co., Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).

HANCOCK Inspirator Co., 85 Liberty St., N. Y. City.

JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

MATHEWS, H. A., Mfg. Co., Seymour, Conn.

PARISH & Bingham Co. (The), Hamilton, St., Cleveland, O.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFER & Bundenberg Mfg. Co., Foxboro, Mass.

SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

SIDNEY Mfg. Co., 5300 Armour Ave., Chicago, Ill.

SIMMONS, John, Co., 101 Centre St., N. Y. City.

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

STAR Brass Mfg. Co., 108 E. Dearborn St., Boston, Mass.

WATSON, H. L., Co., Erie, Pa.

WORCESTER Pressed Steel Co., Worcester, Mass.

STARTERS (Automatic)

BALL, F. H. & F. O., Plainfield, N. J.

STEEL

AMERICAN Sheet Steel Co., 24 State St., N. Y. City.

AMER. Tube & Stamping Co., Bridgeport, Conn.

BASSETT & Presley Co., Cleveland, O.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

BROOKEBANK, Mullin & Co., 409 Commerce St., Phila., Pa.

CARPENTER Steel Co., Reading, Pa.

COLUMBIA Steel Co., Elyria, O.

CRUCIBLE Steel Co. of America, Empire Bldg., Pittsburg, Pa.

ELIOTT-Blair Steel Co., Taylor and Mercer Sts., New Castle, Pa.

FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.

FINISHED Steel Co. (The), Youngstown, Ohio.

JONES & Laughlins Co., Pittsburg, Pa.

LUKENS Steel Co., Coatsville, Pa.

MIDVALE Steel Co., Philadelphia, Pa.

MORRIS & Bailey Steel Co., Ger. Nat'l. Bank Bldg., Pittsburg, Pa.

NASH, Geo., & Co., 224 Pearl St., N. Y. City.

PARDEE, C., Wks. (The), Perth Amboy, N. J.

PROSSER & Sons, Thos., 15 Gold St., N. Y. City.

REPUBLIC Iron & Steel Co., Stock Exchange Bldg., Chicago, Ill.

ROYAL Metal Steel Co., Inc., 17 Bridge St., N. Y. City.

STANDARD Gauge Steel Co., Beaver Falls, Pa.

SUPERIOR Steel Co., Carnegie, Pa.

UNION Drawn Steel Co., Beaver Falls, Pa.

WARD, Edgar T. & Sons, 25 Purchase St., Boston, Mass.

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UNION Drawn Steel Co., Beaver Falls, Pa.

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CHANDLER Co. (The), 31 Taylor St., Springfield, Mass.

CHILDS, S. D., & Co., 200 So. Clark St., Chicago, Ill.

MURDOCK, Jr., Co., Jas., 116 Opera Pl., Cincinnati, O. (see page 51).

QUINT, S. H., & Sons, 15 S. 4th St., Philadelphia, Pa.

ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.

SMITH Mfg. Co., R. H. (The), Springfield, Mass. (see page 73).

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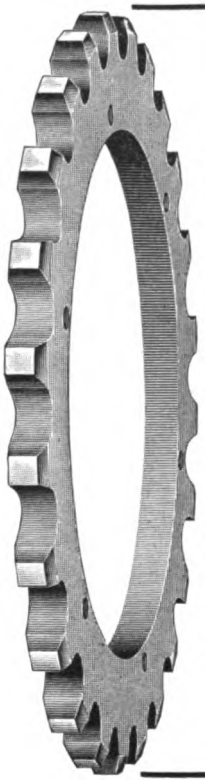

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SMITH, E. L., 43 Columbus Ave., Boston, Mass.
WAUGH, Chas., & Co., 856-64 Main St., Cambridge, Mass.

STEERING KNUCKLES

AMERICAN Ball Bearing Co., Cleveland, Ohio.
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).
GEMMER Engine Co., Wabash, Ind.
LEE & Porter, Buchanan, Mich.
MORSE, Williams & Co., West End Trust Bldg., Phila., Pa.
TIMKEN Roller Bearing Axle Co., Canton, Ohio.
VANDERBEEK Tool Wks., Hartford, Conn.

STEERING WHEELS

AMERICAN Veneer Co., Kenilworth, N. J.
AMER. Wood Rim Co., Bradford, Pa.
BYRNE, Kingston & Co., Kokomo, Ind.
CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).
CENTAUR Motor Vehicle Co., 59 Franklin St., Buffalo, N. Y.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
GARFORD Co. (The), Elyria, O. (see page 9).
GOERSS, Herman, 162 Russell Ave., Cleveland, O.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
MUNCIE Wheel & Jobbing Co., Muncie, Ind.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).
RASTETTER & Son, Ft. Wayne, Ind.
WARNER Gear Co., Muncie, Ind.

STEPS

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BLAKESLEE Forging Co., Plantsville, Conn.
CUSHING, J. M., Jamestown, N. Y.
DRUEN, B. D., 71 Hamilton St., New Haven, Conn.
KELSEY & Co., New Haven. Conn.
QUINCY, Manchester, Sargent Co., 293 Dearborn Ave., Chicago, Ill. (see page 87).
RUBBER Step Co., Exeter, N. H.
SMITH, H. D., & Co., Plantsville, Conn.
STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.
WESTERN Automatic Machine Screw Co., (The), Elyria, O.
WING Co., The Chas., Amesbury, Mass.

STORM SHIELDS (See Aprons, Storm)

STRAINERS (Gasoline)

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 55).
HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).
KAUFMANN, Chas., 45 So. Main St., Oshkosh, Wis.

SUPPLIES (Dealers and Jobbers)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 29).
BECKLEY-Ralston Co., Michigan Ave., Chicago, Ill. (see page 61).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 21).
FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (see page 57).
POPE Mfg. Co., Hartford, Conn. (see page 15).
POST & Lester Co. (The), Hartford, Conn. (see page 19).

SWITCHES (Electric)

AMERICAN Coil Co., Foxboro, Mass.
AUTO Lock Co., 654½ Minerva Ave., Chicago, Ill.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).
B. & J. Mfg. Co., 1218 Michigan Ave., Chicago, Ill.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).
BYRNE, Kingston & Co., Kokomo, Ind.
CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).
DAYTON Electrical Mfg. Co., Dayton, O.
DOW Portable Electric Co., Braintree, Mass.
ELDREDGE Elec. Mfg. Co., Springfield, Mass. (see page 19).
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).
GOEBEL, F. A., Marietta, O.
HART & Hegeman Mfg. Co., Hartford, Conn.
McKIBBIN Mfg. Co., South Norwalk, Conn.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PARKER, Henry F., 127 N. Fullerton Ave., Montclair, N. J.
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page opposite).
SPECIALTY Mfg. Co., South Norwalk, Conn.
SPLITDORF, C. F., 27 Vandewater St., New York (see page 109).
TRUMBULL Electric Mfg. Co., Plainville, Conn.
WESTERN Electric Co., 259 So. Clinton St., Chicago, Ill.

SWITCHES (Lock)

AUTO-Lock Plug Co., Inc., 31 Nassau St., N. Y. City.
GOEBEL, F. A., Marietta, O.
LOCK Switch Mfg. Co., 20 Broad St., N. Y. City.

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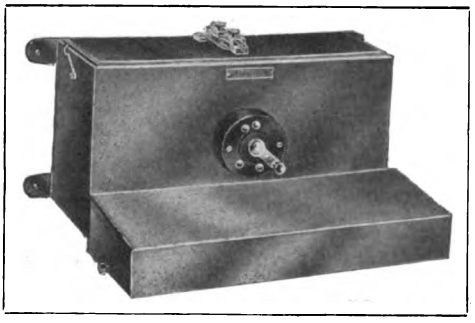

WRITE AT ONCE FOR PARTICULARS

The Induction Coil Company, 106 Wisconsin St., Milwaukee, Wis.

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TACHOMETERS (See Indicators, Speed and Distance)

TANKS

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BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.
BOWSER & Co., S. F., Ft. Wayne, Ind. (see page opposite).
BOYD, James, 73 39th St., Brooklyn, N. Y.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 101).
DETROIT Auto Specialty Co., Detroit, Mich. (see page 69).
DIAMOND Stamped Ware Co., Detroit, Mich.
FEDDERS Mfg. Co., Buffalo, N. Y. (see page 101).
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., New York, N. Y.
HAYES Mfg. Co., Detroit, Mich.
INTERNATIONAL Non-Explosive Tank Co., 84-86 Nassau St., New York.
IRONCLAD Mfg. Co., Brooklyn, N. Y.
JANNEY, Steinmetz & Co., Drexel Bldg., Phila., Pa.
KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 17).
KINSEY Mfg. Co., Dayton, O. (see page 23).
KIRK-Latty Co., Cleveland, O.
MANUFACTURERS Can Co. (The), 132-36 Mulberry St., Newark, N. J.
MAYO Radiator Co., New Haven, Conn. (see page 99).
NATIONAL Tank Co., 10-16 Canal St., Dayton, O. (see page opposite).
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
PRESSED Steel Tank Co., Milwaukee, Wis.
STANDARD Welding Co., 41 Cone St., Cleveland, O.
WALKER & Son, James, Detroit, Mich.
WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page opposite).
WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page opposite).

TANKS (Gas Generating)

AMERICAN Generator Co. (The), 63d St. and Park Ave., N. Y. City.

TANKS (Storage)

BOWSER & Co., S. F., Ft. Wayne, Ind. (see page opposite).
BROWN Oil Can Co., Dawson St., Toledo, O.
EASTERN Oil Tank Co., Lowell, Mass.
GETCHELL, S. S., & Sons, Woonsocket, R. I.
GILBERT & Barker Mfg. Co., 82 John St., N. Y. City.
GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.
GORDON Tank & Pump Co., Dayton, O.
IRONCLAD Mfg. Co., 204 Varet St., Brooklyn, N. Y.
KALTENBACH, Fred, 12 N. Jefferson St., Chicago, Ill.
NATIONAL Tank CO., 10-16 Canal St. Dayton, O. (see page opposite).
ROYER-Radford & Gordon Tank and Pump Co., Dayton, O.
STOUTENBOROUGH, X., 277 Pearl St., N. Y. City.
TOKHEIM Mfg. Co., Cedar Rapids, Iowa.
WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page opposite).
WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page opposite).

TAPER PINS (See Screw Machine Products)

TIMERS (See Spark Timing Devices)

TIRES (Cellular)

BROOKE, M. E., Denver, Colo.
IDEAL Auto Tire Co., Detroit, Mich.
MILWAUKEE Rubber Works Co., Cudahy, Wis.
MITCHELL Punctureless Pneumatic Tire Co., Swampscott, Mass.
RUBBER Tire Co. (The), 1215 Arch St., Phila., Pa.
VOORHEES Rubber Mfg. Co., Bostwick Ave., Jersey City, N. J.

TIRES (Leather)

CENTRAL Leather and Rubber Tire Works, 238-240 W. 50th St., N. Y. City.
SALISBURY Tire Co., Owosso, Mich.
SAMSON Leather Tire Co., 12 W. 33d St., N. Y. City.

TIRES (Pneumatic)

AJAX Standard Rubber Co., foot of East 106th St., New York.
CONTINENTAL Caoutchouc Co., 43 Warren St., N. Y. City (see page 5).
CONTINENTAL Rubber Works, Erie, Pa.
DIAMOND Rubber Co., Akron, O.
ELECTRIC Rubber Mfg. Co., Rutherford, N. J.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 29).
FEAR Naught Tire & Rubber Co., Paterson, N. J.
FISK Rubber Co., Chicopee Falls, Mass.
G & J Tire Co., 549 E. Georgia St., Indianapolis, Ind.
GAULIOS Tire Co., Broadway and 56th St., New York.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
GOSHEN Rubber Works, Goshen, Ind.
HARTFORD Rubber Wks. Co., Hartford, Conn.
INTERNATIONAL Auto. & Vehicle Tire Co., 90-92 W. B'way, N. Y. City.
KOKOMO Rubber Co., Kokomo, Ind.
MICHELIN Tire Co., 6 W. 29th St., N. Y. City.
MITCHELL Pneumatic Tire Co., Swampscott, Mass.
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for GASOLINE, underground, long distance, 25.00 "

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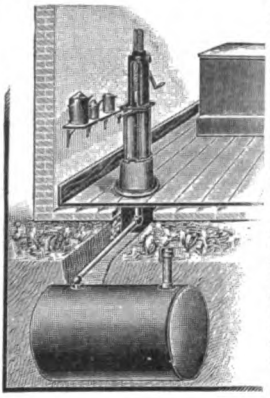
WASTE CANS, PUMPS, ACCURATE MEASURES, GOOD FUNNELS and STRAINERS

Established 1869

F. CORTEZ WILSON & CO., - 247 Lake Street, Chicago

THE NATIONAL GASOLINE TANKS

The National Long Distance Gasoline Storage Outfit which permits of placing the supply tank under ground, the pump being inside the building. In perfecting this outfit we have observed to the letter the rules of the underwriters' Laboratories, and can recommend it to be the safest and most economical way of handling gasoline ever devised.



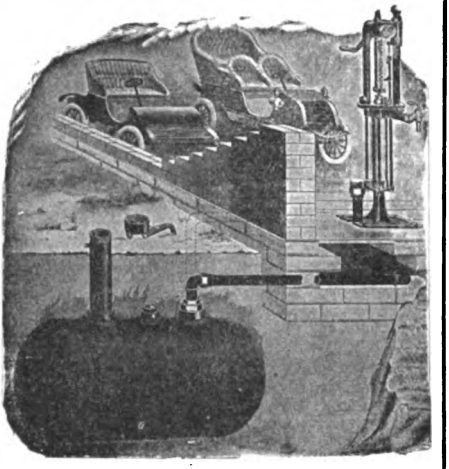
This pump is one of our latest Double Cylinder, which in operating there is no lost motion, every movement of the handle pumps and measures oil, saving time, labor and money.

This outfit is especially designed for Automobile Garages.

Ask for Catalogue

The NATIONAL TANK CO., Inc.
Dayton, Ohio

TEN BOWSER ADVANTAGES

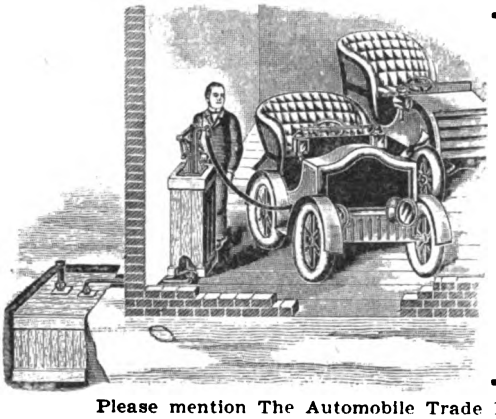


Cut 41. Long Distance, Self-Measuring. The Standard Garage Equipment for Gasolene Storage.

1. Eliminates danger. 2. Draws gasolene in one-tenth of the time ordinarily required. 3. Evaporation, leak and waste proof. 4. Keeps gasolene from deteriorating 5. Pumps and measures at the one operation. No lost time. 6. Measures gallons, half-gallons or quarts as desired. 7. Does away with the use of funnels, measures and cans. 8. An underground tank built to last a lifetime. 9. Tank buried in the most convenient place, regardless of the location of the pump 10. All metal durable pump placed inside the garage. Send for catalog J.

S. F. Bowser & Co., Inc.

Eastern Office:
255 Atlantic Ave., Boston, Mass. FORT WAYNE, IND.



Western Underground Long Distance Gasoline Storage Outfits

Especially built for use in the garage. Tank is placed underground any desired distance from the building where pump is situated, is built of heavy galvanized sheet steel encased in wood and has sheet lead bottom. This tank will last a lifetime as lead is not affected by the acids contained in gasoline and positively assures no-leakage. Pump will measure accurately any given quantity from ½ pint to ½ gallon directly into automobile reservoir by means of a hose connection. Guaranteed to be positively non-evaporative. We also make less expensive outfits for the individual owner. Send for catalog, it will pay you.

Western Oil Pump Co. 2447 Kosciusko St. ST. LOUIS, MO.

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POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).
TENNANT Auto-Tire Co. (The), Springfield, O.

TIRES (Solid)

ALDEN Rubber Co., Barberton, O.
BATAVIA Rubber Tire Co., Batavia, N. Y.
CALUMET Rubber Tire Co. (The), 43d & Wabansia Ave., Chicago, Ill.
CONSOLIDATED Rubber Tire Co., 40 Wall St., N. Y. City.
DAVIE & Co., 1310-1314 Wallace St., Phila., Pa.
DIAMOND Rubber Co., Akron, O.
EMPIRE Rubber Mfg. Co., Trenton, N. J.
FIRESTONE Tire & Rubber Co., Miller St. and Sweitzer Ave., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARRISBURG Rubber Tire Wks., Harrisburg, Pa.
HARTFORD Rubber Wks. Co., 691 Park Ave., Hartford, Conn.
INDIA Rubber & Insulated Wire Co., Jonesboro, Ind.
INDIA Rubber Co., New Brunswick, N. J.
INTERNATIONAL Auto. & Vehicle Tire Co., Milltown, N. J.
KOKOMO Rubber Co., Kokomo, Ind.
MAHONING Rubber Co., Youngstown, O.
MORGAN & Wright, Lake and May Sts., Chicago, Ill.
NEW JERSEY Car Spring & Rubber Co., Jersey City, N. J.
NEW YORK Belting & Packing Co., 25 Park Pl., N. Y. City.
ONEIDA Rubber Tire Wks., Oneida, N. Y.
PENNSYLVANIA Rubber Co., Jeannette, Pa.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).
REVERE Rubber Co., Boston, Mass.
ST. JOHN Rubber Tire Co., 116 Broad St., N. Y. City.
STEIN Double Cushion Tire Co., Akron, O.
SWINEHART Clincher Tire Co., Akron, O.
VICTOR Rubber Tire Co., Springfield, O.

TIRE ALARMS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

TIRE CASES

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).
BURGIN Bros., Springfield, Mass.
GILBERT Mfg. Co., New Haven, Conn. (see page 51).
HOPEWELL Bros., 42 Osborne St., Cambridge, Mass. (see page 51).
KIMBALL Tire Case Co., 171 Broadway, Coucil Bluffs, Ia.
NATHAN Anklet Support Co. (The), 8[illegible] Reade St., N. Y. City.
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
SEITZ, C., 207 E. 35th St., N. Y. City.
TEEL Mfg. Co., 132 Main St., Medford, Mass.
WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 119).
WILEY, Wm. H. & Son Co., Box 30, Hartford, Conn. (see page 51).

TIRE FLUID

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).
BIKO Mfg. Co., Hubbardson, Mass.
BUFFALO Specialty Co., 375 Ellicott St., Buffalo, N. Y.
CHICAGO Tire Filling Co., 122 S. Green St., Chicago, Ill.
LINOLE Mfg. Co., 9 Schiele Ave., San Jose, Cal.
LONGHURST, James S., 72 Nevins St., Brooklyn, N. Y.
MOORE, Geo. P., Co., 305 Van Ness Ave., San Francisco, Cal.
NEWMASTIC Tire Co., Chicago, St. Louis, Los Angeles and New York.
N. Y. Anti-Puncture Tire Co., 132 W. 49th St., New York.

TIRE HOLDERS

GILBERT Mfg. Co., New Haven, Conn. (see page 51).
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

TIRE PLUGS

COX & Spencer, Rahway, N. J.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
PNEUMATIC Tire Plug Co. (The), Danbury, Conn.
TINGLEY & Co., Chas. O., Rahway, N. J.

TIRE PROTECTORS

ADWEAR Tire Sleeve Co., North Attleboro, Mass.
AMERICAN Anti-Puncture Tire & Auto Co., 1693 Broadway, N. Y. City.
BROWN Mfg. Co., J. C., Butler, Ind.
CHICAGO Rawhide Mfg. Co., 75 Ohio St., Chicago, Ill.
GALLIEN, A. E., 12 W. 33d St., N. Y. City.
GILBERT Mfg. Co., New Haven, Conn. (see page 51).
HOWARD Mfg. Co., Attleboro, Mass.
HUMPHREYS, J., 1021 N. E. Payne Ave., Cleveland, O. (see page 63).
LEATHER Tire Goods Co., Newton Upper Falls, Mass. (see page opposite).
MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.
MORE-POWER Co., 619 Gorham St., Lowell, Mass.
PNEUMATIC Tire Protector Co., 14-16 S. St. Clair St., Dayton, O.
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
SLAMA Tire Protector Co., Humboldt, Neb.

TIRE REPAIR KITS

AUTO Goods Co., 425 Butler Exch., Providence, R. I.
AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).
COLE, G. W., Co., 143 B'way, N. Y. City.
DIAMOND Rubber Co., Akron, O.
GOODRICH, B. F., Co., Akron, O.
GOODYEAR Tire & Rubber Co., Akron, O.
HARTFORD Rubber Works Co., Hartford, Conn.

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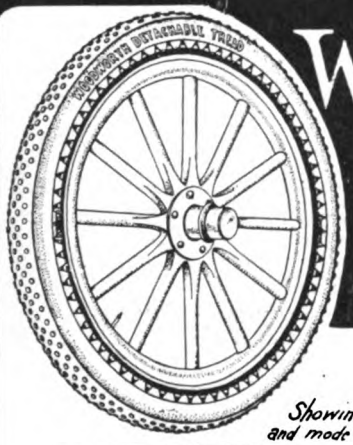
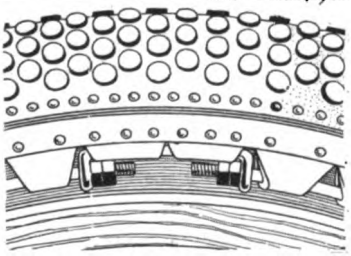
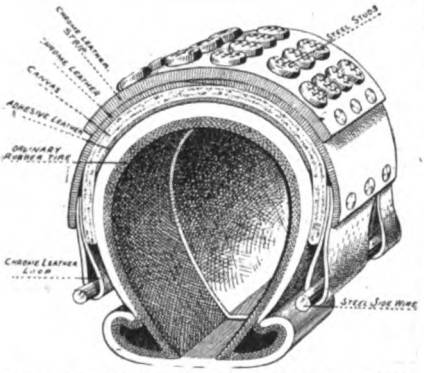


WOODWORTH DETACHABLE TREAD

Showing details and mode of fastening.





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Because of the Real Merit of the goods and our vigorous advertising campaign in all the papers, thousands of Automobilists are now constant users of our product which prevents punctures, skidding, cuts of stone, bruises, allowing no wear on the tires, thereby reducing the up-keep of car by one-half.

BIG MONEY FOR DEALERS IN SUPPLYING THE DEMAND

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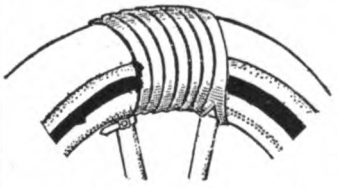
SPECIAL DISCOUNT TO DEALERS

26 x 2	$ 8.00 each	32 x 4	$18.00 each
26 x 2½	10.00 "	34 x 2½	15.00 "
26 x 3	11.00 "	34 x 3	16.00 "
28 x 2½	11.00 "	34 x 3½	18.00 "
28 x 3	12.00 "	34 x 4	19.00 "
28 x 3½	14.00 "	34 x 4½	20.00 "
30 x 2½	12.00 "	34 x 5	23.00 "
30 x 3	13.00 "	36 x 2½	16.00 "
30 x 3½	15.00 "	36 x 3	18.00 "
30 x 4	16.00 "	36 x 3½	19.00 "
32 x 2½	14.00 "	36 x 4	20.00 "
32 x 3	15.00 "	36 x 4½	22.00 "
32 x 3½	16.00 "	36 x 5	25.00 "

760 mm. x 90 mm. tires take 30 x 3½ treads



THE AUTOMOBILE TIRE EMERGENCY STRAP

A chrome tanned leather band about 7 feet long and 1¾ in. wide, having a strap and buckle on each end for fastening to the spokes. It is applied by fastening one end to a spoke and winding tightly about the tire and buckling the other end in a manner similar to the first. Put up with full directions in a small box suitable for carrying in the tool kit. Will bind up bursted, rim-worn or badly cut tire so that it will run a hundred miles.

ONE SIZE FITS ALL TIRES. PRICE $1.00

LEATHER TIRE GOODS CO.,

Sole Manufacturers

NEWTON UPPER FALLS, MASS.

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RHODES Mfg. Co., 421 W. Bridge St., Grand Rapids, Mich.

SCHWAB, Louis, 134 Milford Ave., Newark, N. J.

UNION Mfg. Co., 506-508 Genesee St., Buffalo, N. Y.

TIRE SHOES

MANNING Mfg. Co., Holyoke, Mass.

TIRE STRAPS

LEATHER Tire Goods Co., Newton Upper Falls, Mass. (see page 117).

TIRE TAPE

GOODYEAR Tire & Rubber Co., Akron, O.

MASS. Chemical Co., 200 Summer St., Boston, Mass.

NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.

NATIONAL India Rubber Co., Bristol, R. I.

TIRE TOOLS

BLANCHARD, A. W., 10 Clinton St., Brooklyn, N. Y.

GOODRICH, B. F., Co., Akron, O.

HANCOCK & Heller, Water St., Binghamton, N. Y.

LONG & Mann Co. (The), 527 Central Bldg., Rochester, N. Y. (see page 83).

MAXWELL & Co., L. R., Cedar Rapids, Ia

MORGAN & Wright, Chicago, Ill.

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

REMSBURG Mfg. Co., E. E., Main & Weston Aves., Springfield, O.

RHODES Mfg. Co., Grand Rapids, Mich.

UNEEDME Tire Tool Co., Columbus, O.

TOOLS

BURNHAM, Geo. Co. (The), Worcester, Mass.

FRASSE Co. (The), 38 Cortlandt St., N. Y. City.

FRASSE, Peter A., & Co., 94 Fulton St., N. Y.

GOODELL-Pratt Co., Greenfield, Mass.

HAMMACHER, Schlemmer & Co., New York.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 35).

NOONAN Tool & Machine Works, Rome, N. Y.

NORTON & Jones Machine Tool Works (The), East Main St., Plainville, Conn.

PATTERSON, Gottfried & Hunter, New York.

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).

SMITH & Heminway, 296 Broadway, New York.

SPRINGFIELD Drop Forging Co., Springfield, Mass.

UNIVERSAL Tool Co., 54 Taylor St., Springfield, Mass.

UTICA Drop Forge & Tool Co., 296 Broadway, New York, N. Y.

VANDERBEEK Tool Wks., Hartford, Conn.

WATERBURY Tool Co., Waterbury, Conn.

TOOL BAGS

BOYLE & Co., John, 112-114 Duane St., N. Y. City.

BUNKER Saddle & Specialty Co., 208 Lake St., Chicago, O.

WARREN Leather Goods Co., 80 Austin St., Worcester, Mass.

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TOPS (Auto)

AMERICAN Top Co., Jackson, Mich.

AUTOMOBILE Buggy Top Co. of America, Noxen, Pa.

AUTO Cape Top Co., 1465 Michigan Ave., Chicago Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).

AUTOMOBILE Top & Supply Co., Cleveland, O.

AUTO Top Co., of N. Y., 509 W. 30th St., N. Y. City.

BALTIMORE Buggy Top Co., Baltimore, Md.

BARNDT-JOHNSTON Auto Supply Co. (The), Columbus, O. (see page 121).

BAUER Bros., 937 W. 8th St., Cincinnati, O.

BEEBE, A. M., 441 Elm St., New Haven, Conn.

BLASIER Mfg. Co., M. E., Utica, N. Y.

BUOB & Scheu, 408-412 Court St., Cincinnati, O.

CARTIER, Chapman & Co., Ludington, Mich.

CENTRAL Mfg. Co., Connersville, Ind.

CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.

COLEMAN Auto Top Co., Detroit, Mich.

COLLINS & Son, G. A., Akron, O.

CORTLAND Carriage Goods Co., Cortland, N. Y.

DETROIT Carriage Co., Detroit, Mich.

DICKINSON, Wm. J., 158 Duke St., Toronto, Ont., Can.

ECLIPSE Buggy Co., Fort Wayne, Ind. (see page opposite).

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

EMPIRE Gear & Top Co., 413 N. 22d St., Philadelphia, Pa.

EVERETT, B. F., Detroit, Mich.

FELLWOCK Roll & Panel Co. (The), Evansville, Ind.

FISHER, A., 302-310 Fort St. W., Detroit, Mich.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

HILL Manufacturing Co., 1396 West Ave., Buffalo, N. Y.

HOFFMAN Wagon Co., Jacob, Cleveland, O.

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They are built on proper lines of proper materials and have that proper Auto style necessary to a properly equipped car.

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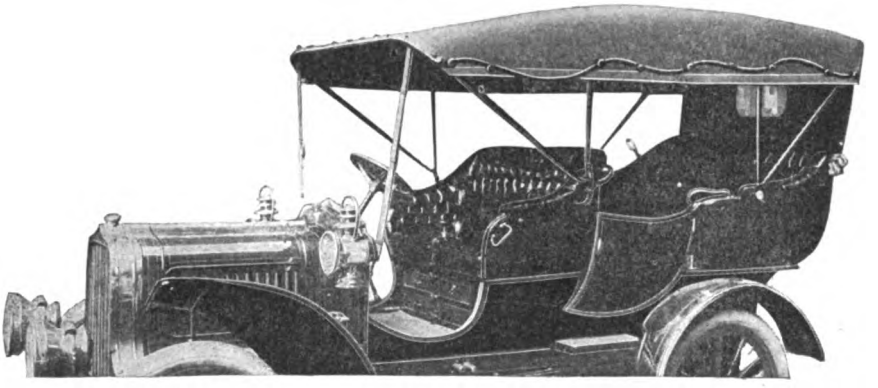
Fort Wayne, Indiana



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We are equipped to contract for trimming and painting automobile bodies. Our capacity is unlimited. High-grade mechanics to build work. We also manufacture slip covers, lamp covers, tire covers, dust hoods, tool bags, foot rests, etc. Write for catalogue and prices.

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INDIANAPOLIS Dash Co., Indianapolis, Ind.

KIMBALL & Co., C. P., Chicago, Ill.

KING Mfg. Co., Springfield, O. (see page opposite).

KNOWLTON, C. W., Hudson, Mass.

KROH, C. Z., Mfg. Co., Toledo, O.

LARRIMORE Buggy Top Co., Baltimore, Md.

LIMOUSINE & Carriage Mfg. Co., 325 E. 35th St., Chicago, Ill.

LONDON Auto. Supply Co. (The), 1229 Michigan Ave., Chicago, Ill. (see page 119).

LONGDIN & Brugger, Fond-du-Lac, Wis.

MECKEL, F. L., 77 E. 13th St., Chicago, Ill.

MEYER, C. G., Main & Ann Sts., Tiffin, O.

MICHIGAN Auto. Body Co., Detroit, Mich.

MICHIGAN Top Co., 17 Duffield St., Detroit, Mich.

MOORE & Munger Co., 602 West 52d St., New York.

MURRAY & Co., P. A., Newton, Mass.

MYERS Dayton Top Co. (The), Dayton, O. (see page opposite).

NEWTON, W. H., & Son, 127 Elm St., Cortland, N. Y.

NEW York Carriage Top Co., 509 W. 30th St., N. Y. City.

NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.

PARSONS Buggy Top Co., Chicago, Ill.

QUINBY & Co., J. M., 1534 Broadway, N. Y. City.

RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.

RANDS Mfg. Co., Beaubien and Macomb Sts., Detroit, Mich.

REX Auto Top Co., 61 E. Spring St., Columbus, O. (see page opposite).

RITTER Mfg. Co., 255 Jefferson Ave., Detroit, Mich.

RUSSELL, H. J., 32 Exchange St., Worcester, Mass.

SCHUBERT Bros. Gear Co., Oneida, N. Y.

SNOW & Co., N. H., Binghamton, N. Y.

SPRAGUE Umbrella Co., Norwalk, O.

SPRINGFIELD Auto. Top & Upholstering Co., 74 Harrison St., Springfield, Mass.

SPRINGFIELD Metal Body Co., Springfield, Mass.

STONE & Sons, C., 167 Ogden St., Chicago, Ill.

STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.

TROY Carriage Sunshade Co., Troy, O.

VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.

WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 119).

WEISS, Chas., 4725 Cottage Grove Ave., Chicago, Ill.

WOOD & Sons, Fred'k R., 219 W. 19th St., N. Y. City.

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COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

TRIMMINGS (Cloth and Carpet)

ADAMS, Wm. F., 339 B'way, N. Y. City.

BRIDGEPORT Coach Lace Co., 805 Wood Ave., Bridgeport, Conn.

CARR, F. S., 74 Pearl St., Boston, Mass. (see page 103).

CRANDALL, Stone & Co., Binghamton, N. Y.

DUSENBURY, C. Coles, & Son, 396 B'way, N. Y. City.

EVERETT, B. F., Detroit, Mich.

GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

HARDT, Von Bernuth & Co., 477 Broome St., N. Y. City.

HODGMAN Rubber Co., 806 Broadway, N. Y. City.

HORSTMAN, Wm. H., Co., 5th and Cherry Sts., Philadelphia, Pa.

HUTCHINSON, W. R., & Co., 15 Caledonia Ave., Rochester, N. Y.

KROH, C. Z., Mfg. Co., Toledo, O.

LANDERS Bros. Co., 445 10th St., Toledo, O. (see page 103).

MANUFACTURERS' Selling Co. (The), 1777 Broadway, N. Y. City.

MEYER, John C., & Co., 80-86 Kingston St., Boston, Mass.

MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page 103).

NATIONAL India Rubber Co., Bristol, R. I.

NEW Haven Button Co., New Haven, Conn.

RARITAN Woolen Mills, 14 White St., N. Y. City.

ROEHM & Davison, Detroit, Mich.

ROUSE, J. G., & Co., 413 Arch St., Phila., Pa.

SCHOFIELD, Mason & Co., Fairhill and Cumberland Sts., Philadelphia, Pa.

SLATER, S., & Sons, 47 Worth St., N. Y. City.

TINGUE Mfg. Co., Seymour, Conn.

WATERLOO Woolen Mfg. Co., Waterloo, N. Y.

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TRIMMINGS (Metal)

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ATWOOD Mfg. Co., Amesbury, Mass.

BARLOW Mfg. Co., Holyoke, Mass.

CLARK Novelty Co. (The), 380 W. Exchange St., Rochester, N. Y.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 53).

COWLES, C., & Co., New Haven, Conn.

CRANDALL, Stone & Co., Binghamton, N. Y.

DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich. (see page 53).

ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.

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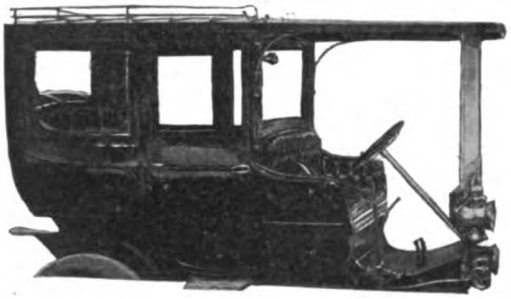

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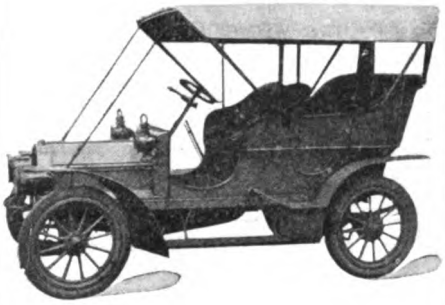
The Myers-Dayton Top Co.



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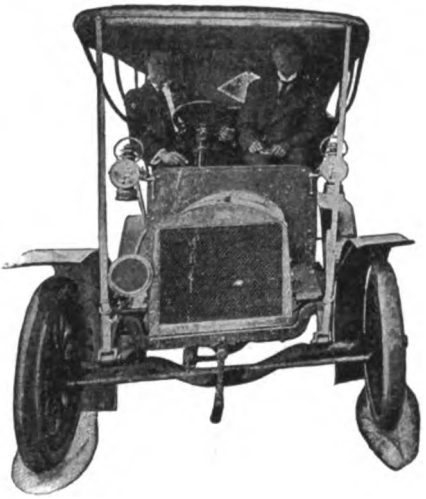
109 May Street Dayton, Ohio

King Automobile Tops



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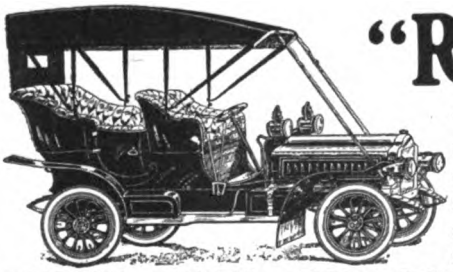

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The only top that stands the test, and does not sag over bows. Our 1906 Catalogue tells you all about them, and our new style Bows. Catalogue ready to mail soon. Special inducements to manufacturers and dealers. CONSULT US.
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LEE Mfg. Co. (The), South Park, Port Huron, Mich.
METAL Stamping Co., 468-472 B'way, N. Y. City.
MURDOCK, Jas., Jr., & Co., 116 Opera Pl., Cincinnati, O. (see page 51).
NEIDER Co., F. A. (The), Augusta, Ky. (see page 53).
ROEHM & Davison, Detroit, Mich.
SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.
SMITH, Jos. N., & Co., Fourth & Porter Sts.,
TAYLOR Co., H. D., 101-105 Oak St., Buffalo, N. Y.
VICTOR Metals Co., 29 Broadway, N. Y. City.
WOODRUFF & Sons Co., Walter W. (The), Mount Carmel, Conn.

TRUNKS (Auto)

BOYLE & Co., John, 112-114 Duane St., N. Y. City.
SAGE'S Trunk Depot, Boston, Mass.
TEEL Mfg. Co., 132 Main St., Medford, Mass.
W. W. Winship, 71 Summer St., Boston, Mass.

TRUNK RACKS

CONNECTICUT Steel & Wire Co., 308 Pearl St., Hartford, Conn.
TEEL Mfg. Co., 132 Main St., Medford, Mass.

TUBING (Brass and Copper)

AMERICAN Tube Wks., 137 Milk St., Boston, Mass.
ANSONIA Brass & Copper Co., Ansonia, Conn.
BENEDICT & Burnham, Waterbury, Conn.
BRIDGEPORT Brass Co., Bridgeport, Conn.
BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 101).
CHICAGO Brass Co., Kenosha, Wis.
CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.
DETROIT Copper & Brass Rolling Mills, Detroit, Mich.
HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.
IVINS, Elwood Tube Works, Mill, Oak Lane Station, Philadelphia, Pa.
LONG Mfg. Co., 381-385 Wabash Ave., Chicago, Ill.
LONG-Turney Mfg. Co., Rome, N. Y.
NEW Jersey Tube Co., Newark, N. J.
RANDOLPH-Clowes Co., Waterbury, Conn.
ROME Brass & Copper Co., Rome, N. Y.
SIMONS, John, Co., 104-110 Centre St., N. Y. City.
STOLP Mfg. Co., Huron & Townsend St., Chicago, Ill. (see page 69).

TUBING (Flexible)

ANGLO-American Flexible Metallic Tubing Co., New York, N. Y.
AUTOMOBILE Supply Mfg. Co., 320 Driggs Ave., Brooklyn, N. Y.
COATES Clipper Mfg. Co., Worcester, Mass.
FLOWER & Co., Walter L., St. Louis, Mo.
MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City.
SMITH, Albanus L. & Co., 1305 Arch St., Philadelphia, Pa. (Importer).

TUBING (Steel)

AMER. Tube & Stamping Co., Bridgeport, Conn.
DELAWARE Seamless Tube Co., Auburn, Pa.
ELWOOD, Ivins, Tube Wks., Mill, Oak Lane Station, Philadelphia, Pa.
LAMINATED Tube Co., Columbus, O.
MACKIE Steel Tube Mfg. Co. (The), Hammond, Ind.
NATIONAL Tube Co., McKeesport, Pa.
PITTSBURG Seamless Tube Co., Beaver Falls, Pa.
SEAMLESS Steel Tube Mfg. Co. (The), 804 Union Trust Bldg., Detroit, Mich.
SHELBY Steel Tube Co., 1819 Frick Bldg., Pittsburg, Pa.
STANDARD Welding Co., 41 Cone St., Cleveland, O.

TUBE EXPANDERS

ARTHUR Co. (The), 188 Front St., N. Y. City.
CONDON, Geo. W., 267 Halsey St., Newark, N. J.
FORG, Peter, Park St., Somerville, Mass.
NOVELTY & Repair Shop (The), Milford, Ohio.
NOONAN Mach. & Tool Wks., Rome, N. Y.

TUBES (Boiler) See Pipe (Wrought Iron or Steel) Tubing (Brass or Copper) also Tubing (Steel)

TURNBUCKLES (See Screw Machine Products)

TURN TABLES

AUTO Turntable Co., 1418 Madison Ave., Baltimore, Md.
BICYCLE Step Ladder Co. (The), 63 Randolph St., Chicago, Ill.
GIBBS-Brower Co., 150 Nassau St., N. Y. City.
LINK Belt Machinery Co., Chicago, Ill.
NORTH Penn. Iron Co. (The), Philadelphia, Pa.
PITLERS Turntable Co., Kansas City, Mo.
WEBER Cycle Co., Colorado Springs, Colo.

VALVES (Safety)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plains, Boston, Mass.
ARTIZAN Brass Co., 116 Michigan St., Chicago, Ill.
ASHTON Valve Co. (The), 271 Franklin St., Boston, Mass.
CROSBY Steam Gage & Valve Co., Boston, Mass.

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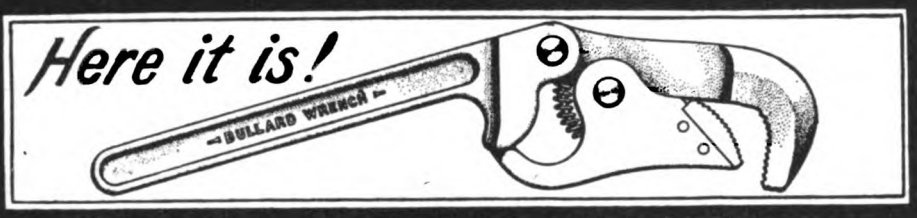

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LUNKENHEIMER Co., Cincinnati, O.
PITTSBURG Gage & Supply Co., 309 Water St., Pittsburg, Pa.
SCHAEFFER & Budenberg, Foxboro, Mass.
SIMMONS Co., John, N. Y. City.
STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.
STAR Brass Mfg. Co., Boston, Mass.
WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

VALVES (Tire)

BOWN Machine Works, Battle Creek, Mich.
HILTON Valve Co., Middleboro, Mass.
MORGAN, B., Newport, R. I.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).
SCHRADER'S, A., Sons, 30-32 Rose St., N. Y.
SCHWAB, Louis, Newark, N. J.
SCOVILLE Mfg. Co., Waterbury, Conn.
STANDARD Valve Co., 163 Hawthorne Ave., Brooklyn, N. Y.

VALVES (Throttle)

CHICAGO Auto. Mfg. Co., Chicago, Ill.
LOCKE Regulator Co., Salem, Mass.
LUNKENHEIMER Co., Cincinnati, O.
NOLTE Brass Co., Springfield, O.
POWELL, Wm., Co. (The), 2525-2531 Spring Grove Ave., Cincinnati, O.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.
SIMMONS, John Co., 104-110 Centre St., N. Y.
VINCENT Valve Co. (The), Sandusky, O.

VAPORIZERS

A. & J. Mfg. Co., Chicago, Ill.
BECKER, John, Hyde Park, Mass.
BRENNAN Mfg. Co., Syracuse, N. Y.
ECKEL, Andrew, 1080 3d Ave., Brooklyn, N. Y.
JAMES, Wm., 92 Liberty St., N. Y. City.
PELTON Gaso. Eng. Wks., Lyons, Ia.

VARNISHES

ACME White Lead & Color Wks., Detroit, Mich.
ARMITAGE & Co., John L., Newark, N. J.
BABCOCK Varnish Co., Boston, Mass.
BECKWITH, Chandler & Co., Newark, N. J.
BERRY Bros., Ltd., Detroit, Mich. (see front cover).
BILLINGS-Chapin Co., Cleveland, O.
BOSTON Varnish Co., Everett Sta., Boston, Mass.
BUFFALO Enamel & Stain Co., 70 W. Genesee St., Buffalo, N. Y.
CALMAN, Emil, 299 Pearl St., New York, N. Y.
CLEVELAND Varnish Co., Cleveland, O.
COLUMBUS Varnish Co. (The), Columbus, Ohio.
DETROIT White Lead Wks., 532 E. Milwaukee Ave., Detroit, Mich.
DEVOE, F. W., & C. T. Raynolds Co., Fulton and William Sts., N. Y. City.
DITZLER Paint & Color Co., 14 Baltimore Ave., West., Detroit, Mich.
FELTON, Sibley & Co., 136-140 No. 4th St., Phila., Pa.
FLOOD & Conklin Co., 136 Chestnut St., Newark, N. J.
GILLESPIE, Chas. H., & Sons, 125 Dey St., Jersey City, N. J.
GLIDDEN Varnish Co., Williamson Bldg., Cleveland, O.
HILDRETH Varnish Co., 32 B'way, N. Y.
LUCAS & Co., John, Philadelphia, Pa.
MASURY, John W., & Son, 44-50 Jay St., Brooklyn, N. Y.
MINETT Varnish Co., 129 Pearl St., N. Y. City.
MURPHY Varnish Co., Chestnut and McWhorter Sts., Newark, N. J.
NICE, Eugene E., 272-74 S. 2d St., Philadelphia, Pa.
ORIENTAL Varnish Co., 72 Midwood St., Brooklyn, N. Y.
PARROTT Varnish Co., Bridgeport, Conn.
PERRIN, Payson & Co., New York City.
PERRIN Varnish Co., 1133 Broadway, N. Y.
RUBBER Paint Co., 154-156 W. Van Buren St., Chicago, Ill.
SCHRACK, C., & Co., 152 No. 4th St., Phila., Pa.
SHERWIN-Williams Co., Cleveland, O.
SMITH, Edward, & Co., 45 B'way, N. Y.
STANDARD Varnish Co., 29 B'way, N. Y.
VALENTINE & Co., 257 Broadway, N. Y. City.
VICTORSON Varnish Co., 299 Pearl St., N. Y.
WATTS De Golyer Co. (The), 377 Illinois St., Chicago, Ill.
WESTERN Reserve Varnish Co., Marquette St., Cleveland, O.
WILLEY, C. A., Hunter's Point, New York.

VOLTMETERS (See Ammeters and Voltmeters)

VULCANIZERS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill.
AUTO-TIRE Vulcanizing Co., Lowell, Mass.
CORP Bros., 40 Mathewson St., Providence, R. I.
FISK Rubber Co., Chicopee Falls, Mass.
INVINCIBLE Mfg. Co., Wilmington, Ill.
MAXSON Vulcanizing Works, 115 Main St., W. Rochester, N. Y.
NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.
STITCH in Time Vulcanizer Co., 331 Kansas Ave., Topeka, Kans.

WASHERS

ARMSTRONG Cork Co., 23d St., and A. V. Ry., Pittsburg.
BOWEN Mfg. Co., Auburn, N. Y. (see page 79).
CLARK, A. N., & Son, Plainville, Conn.
GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 111).
HOFFELD, R., & Co., 61-63 Carroll St., Buffalo, N. Y.

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LEATHER & Brass Mfg. Co., Auburn, N. Y.
MERRIAM, Wm. N., Taunton, Mass.
NATIONAL Lock Washer Co. (The), Newark, N. J. (see page 125).
POSITIVE Lock Washer Co., 291 N. J. R. R. Ave., Newark, N. J.
SCHOONMAKER, A. O., 221 Fulton St., N. Y.
STIMPSON, E. B., & Son, 31 Spruce St., N. Y.
UPSON Bolt & Nut Co., Cleveland, O.

WASHERS (Felt)

BOWEN Mfg. Co., Auburn, N. Y. (see page 79).
BRAUNSDORF, Geo. W., 309 E. 43d St., N. Y. City.
N. E. BOOTH, 261 39th St., Brooklyn, N. Y. (see page 31).

WASHING MACHINERY

CONN. Supply Co., Hartford Life Ins. Bldg., Hartford, Conn.
IDEAL Carriage Washer Co., 62 Lenox St., Rochester, N. Y.
NICHOLSON Mfg. Co., H., 68 Dey St., N. Y.
RYAN & Long, 586 Oneida St., Appleton, Wis.
VEHICLE Specialty Co., 32 Union Pl., Hartford, Conn. (see page 63).

WATER ALARMS AND COLUMNS

JARVIS Engine & Machine Works, River and Spring Sts., Lansing, Mich.
KITTS Mfg. Co., 111-115 Water St., Oswego, N. Y.
LOCKE Regulator Co., Salem, Mass.
PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.
RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.
RELIANCE Gauge Column Co. (The), 45 E. Prospect St., Cleveland, O.
SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

WATER COLUMN MIRRORS

ATWOOD Mfg. Co., Amesbury, Mass.
KNOX, The Frank J. Co., Hartford, Conn.

WELDING (Electric)

STANDARD Welding Co., Cleveland, O.

WHEELS (Comb'n, Wood and Wire)

ESTY, Wm., Laconia, N. H.,
LEE & Porter, Buchanan, Mich.
TOOMEY, C., & Co., 915 Campbell St., Kansas City, Mo.

WHEELS (Tubular Steel)

BRYANT Steel Rim & Wheel Co., Columbus, Ohio.
MIDGELY Mfg. Co., 200 W. Mound St., Columbus, O.
PARISH & Bingham Co., Cleveland, O.
TURNER & Fish, 130 So. Clinton St., Chicago, Ill.
WHITESIDE Wheel Co., 311 E. South St., Indianapolis, Ind.

WHEELS (Wire)

GARFORD Co. (The), Elyria, O. (see page 9).
JAMESVILLE Mfg. Co., Jamesville, N. Y.
LASHAWAY Wheel Co., E., Brookfield, Mass.
PRUDDEN, W. K., & Co., Lansing, Mich.
RASTETTER, Louis, & Son, Fort Wayne, Ind.
SMITH Co., A. O., Milwaukee, Wis.
WESTON-Mott Co., Utica, N. Y.

WHEELS (Wood)

AMERICAN Roller Bearing Co., South Framington, Mass.
ARCHIBALD Wheel Co., Lawrence, Mass.
BIDDLE & Smart Co., Amesbury, Mass.
BUCKEYE Wheel Co., Galion, O. (see page opposite).
CARR, Prescott & Co., Amesbury, Mass.
CRANE & McMahon, 18 South St., N. Y.
EAMES, A. M., & Co., So. Framingham, Mass.
FITCHBURG Wheel Co., Fitchburg, Mass.
HOOPES Bros. & Darlington, West Chester, Pa.
IMPERIAL Wheel Co., Flint, Mich.
JAMESVILLE Mfg. Co., Jamesville, N. Y.
JONES, Phineas & Co., 301 Market St., Newark, N. J. (see page opposite).
JONES & Burt, 173 South St., Utica, N. Y.
MADISON Wheel Co., Madison, O.
MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.
NATIONAL Wheel Co., Jackson, Mich.
NEW Haven Carriage Co., New Haven, Conn.
OLDS Wagon Wks., Fort Wayne, Ind.
PRUDDEN, W. K., & Co., Lansing, Mich.
SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page opposite).
SCHWARZ Patent Wheel Co., Philadelphia, Pa.
SELLE Gear Co. (The), Akron, O.
SHORTSVILLE Wheel Co., Shortsville, N. Y.
STANDARD Wheel Co., Standard and Division Sts., Indianapolis, Ind.
STINSON, Edward, & Co., 327-335 North St., Baltimore, Md.
TIMKEN Roller Bearing Axle Co., Canton, O.
WAPAKONETA Wheel Co., Wapakoneta, O.
WESTON-Mott Co., Utica, N. Y.
WHEEL & Wood Bending Co. (The), 141 John St., Bridgeport, Conn.
ZWICK & Greenwald Wheel Co. (The), Dayton, O.

WHEEL TRUERS

DUDLEY, A., Mfg. Co., Menominee, Mich.
GARVIN Mach. Co., Spring & Varick Sts., N. Y.

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NOONAN Mach. & Tool Wks., Rome, N. Y.
THEIM & Co., University and 38th Aves., Columbia Heights, Minn.
WAGNER Cycle Co., 41-43 West 4th St., St. Paul, Minn.

WIRE (Insulated)

AMERICAN Electrical Works, Providence, R. I.
AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.
ATLANTIC Insulated Wire & Cable Co., New York.
BOURN Rubber Co., Providence, R. I.
CHICAGO Insulated Wire Co., 152 Lake St., Chicago, Ill.
EASTERN Electric Cable Co., Boston, Mass.
GENERAL Electric Co., Schenectady, N. Y.
HAZARD Mfg. Co., Wilkesbarre, Pa.
INDIA Rubber & Gutta Percha Insulating Co., N. Y. City.
INDIANA Rubber & Insulater Wire Co., Jonesboro, Ind.
MILLER, Norman Bruce, 1420 Chestnut St., Phila., Pa.
NATIONAL India Rubber Co., Bristol, R. I.
NEW YORK Insulated Wire Co., N. Y. City.
OKONITE Co., 253 Broadway, N. Y. City.
PACKARD Electric Co., 412 North Ave., Warren, O.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
RUBAY, Leon, 136 W. 38th St., N. Y. City.
SAFETY Insulated Wire & Cable Co., N. Y.
SIMPLEX Electrical Co., Boston, Mass.
STANDARD Underground Cable Co., Pittsburg, Pa.

WIRE TERMINALS

B. & B. Co., 97 Rockview Ave., Plainfield, N. J.
BLISS-Chester Co., Providence, R. I.
BRIGGS, W. H., 424 Bedford Ave., Brooklyn, N. Y.
EASTERN Carbon Works, Jersey City, N. J.
FAHNESTOCK Electric Co., 132 Havemeyer St., Brooklyn, N. Y.
FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).
HERZ & Co., Elm & Marion Sts., N. Y. City.
NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 113).
NEWPORT Eng. Works, 367 Thames St., Newport, R. I.
POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 15).
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.
SPLITDORF, C. F., 27 Vandewater St., N. Y. City (see page 109).

WOOD BENDINGS

AMERICAN Veneer Co., Kenilworth, N. J.
SHEPHERD & Son, H. G., New Haven, Conn.
TUCKER Wood Work Co. (The), Sidney, O.

WRENCHES

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 29).
BARNES Tool Co., 958 Grand Ave., New Haven, Conn.
BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 61).
BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.
BULLARD Automatic Wrench Co., Providence, R. I. (see page 123).
COES Wrench Co., Worcester, Mass.
DUDLY, A., Mfg. Co., Menominee, Mich.
EDMONDS-Metzel Mfg. Co., 153-159 S. Jefferson St., Chicago, Ill.
EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 21).
EWER, M. G., Tolsma Bldg., 45 State St., Detroit, Mich.
FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 57).
HALL'S Sons, Samuel, New York, N. Y.
HAWKEYE Wrench Co., Marshalltown, Ia.
HJORTH Wrench Co., Jamestown, N. Y.
IRLAND Pipe Wrench Co., 15 Court Sq., Boston, Mass.
JENNINGS & Co., C. E., New York, N. Y.
KIBELE & Co., 187 Wisconsin St., Milwaukee, Wis.
LAMSON & Sessions, 412 Scranton Ave., Cleveland, O.
MOSSBERG, Frank, Co., Attleboro, Mass. (see page 35).
OFFSET Handle Wrench Co., 123 La Salle St., Chicago, Ill.
ORR & Lockett Hardware Co., 71 Randolph St., Chicago, Ill.
PECK, Stow & Wilcox Co., Southington, Conn.
POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 15).
POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 19).
QUINCY, Manchester, Sargent Co., 293 Dearborn St., Chicago, Ill. (see page 87).
ROTHENBUCHER Mfg. Co., 328 Jerome St., Brooklyn, N. Y.
SMITH & Hemmingway, 296 Broadway, New York.
SPRINGFIELD Drop Forging Co., Springfield, Mass.
TOWER & Lyon, New York, N. Y.
TRIMONT Mfg. Co., Roxbury, Mass.
TUDOR Mfg. Co., 147 Mill St., Boston, Mass.
WAKEFIELD, J. E., 89 Exchange St., Worcester, Mass.
WALWORTH Mfg. Co., Boston, Mass.
WHITMAN & Barnes Co., Akron, O.
WILLIAMS & Co., J. H., Brooklyn, N. Y.
WORCESTER Pressed Steel Co., 100 Beacon St., Worcester, Mass.

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OCT 25 '06

The Automobile Trade Directory

October, 1906

A Classified List *containing* the Names and Addresses of all American Manufacturers of Complete Automobiles and Motor Boats, and of all makers of component Parts & Accessories

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Issued Quarterly

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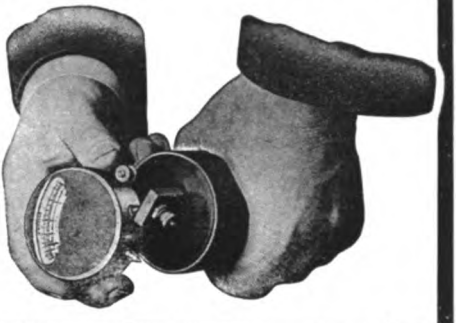

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ADAMS Co. (The), Dubuque, Ia.

AEROCAR Co. (The), Detroit, Mich. (see page 13).

AMERICAN Auto Car Co., 4th and Plumb Sts., Cincinnati, O.

AMERICAN Buggy Auto Co., 4309 Olive St., St. Louis, Mo.

AMERICAN Locomotive Automobile Co., Providence, R. I.

AMERICAN Motor Car Co., Indianapolis, Ind.

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ARDSLEY Motor Car Co., Yonkers, N. Y.

ARIEL Motor Car Co., Baltimore, Md.

AUBURN Auto Co., Auburn, Ind.

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AUTO Vehicle Co., Los Angeles, Cal.

B. L. M. Motor Car & Equip. Co., 31-33 Delevan St., Brooklyn, N. Y.

BARTHOLOMEW Co. (The), 110 Bradley Ave., Peoria, Ill.

BERKSHIRE Automobile Co., Pittsfield, Mass.

BLOMSTROM Motor Co., C. H., 1284 River St., Detroit, Mich.

BROOKS Motor Car Co., Detroit, Mich.

BUCKEYE Mfg. Co., Anderson, Ind.

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CHRISTIE Direct Action Motor Car Co., 519 E. 18th St., N. Y. City.

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COLUMBUS Buggy Co., Columbus, O.

COLUMBIA Electric Co., McCordsville, Ind.

CORBIN Motor Vehicle Corporation, New Britain, Conn.

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COVERT Motor Vehicle Co., 57 Richmond Ave., Lockport, N. Y.

CRAWFORD Auto Co., Hagerstown, Md.

CROESUS Motor Car Co., 216 E. 11th St., Kansas City, Mo.

DAIMLER Mfg. Co., Long Island City, N. Y.

DAYTON & Mashey Auto Wks., 4515 Evans Ave., Chicago, Ill.

DAYTON Motor Car Co., Dayton, O. (see page 11).

DEERE-Clark Motor Car Co., Moline, Ill

DE LUXE Motor Car Co., Toledo, O.

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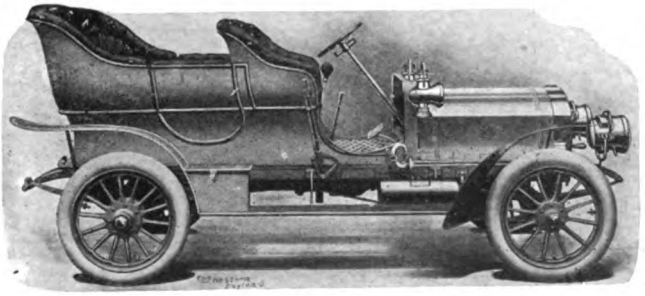

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ELMORE Mfg. Co., Clyde, O.

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FAIRMOUNT Engineering Co., 3207 Spring Garden St., Philadelphia, Pa.

FEDERAL Automobile Co., 1334 First National Bk. Bldg., Chicago, Ill.

FORD Motor Co., Detroit, Mich.

FOREST City Motor Car Co., Massilon, O.

FRANKLIN Mfg. Co., H. H., Syracuse, N. Y.

GAETH Auto Wks., 900 Pearl St., Cleveland, Ohio.

GROUT Bros. Automobile Co., Orange, Mass.

HAMBRICK Motor Car Co., Washington, Ind.

HARRISON Wagon Co., Grand Rapids, Mich.

HAYNES Automobile Co. (The), Kokomo, Ind.

HEWITT Motor Co., 10 E. 31st St., N. Y. City.

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HOLSMAN Auto Co., Monadnock Block, Chicago, Ill.

HUNTINGTON Automobile Co., The., Huntington, L. I., N. Y.

INTERNATIONAL Harvester Co., Sterling, Ill.

IROQUOIS Motor Car Co., Seneca Falls, N. Y.

IVERSON & Co., J. C., 425 Water St., Milwaukee, Wis.

JACKSON Automobile Co., Jackson, Mich.

JEFFERY, Thos. B. & Co., Kenosha, Wis.

KANSAS CITY Motor Car Co., Kansas City, Mo.

KISSEL Motor Car Co., Hartford, Wis.

KNIGHT & Kilbourn, 1240 Michigan Ave., Chicago, Ill.

KNOX Automobile Co., Springfield, Mass.

KRUEGER Mfg. Co., 463-465 Front St., Milwaukee, Wis.

LA SALLE Niagara Auto Co., Niagara Falls, N. Y.

LEAR Auto Co., Oscar, Columbus, O.

LEBANON Motor Wks., Lebanon, Pa.

LOCOMOBILE Co. of America (The), Seaside Park, Bridgeport, Conn.

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MATTHEWS Motor Co., Camden, N. J.

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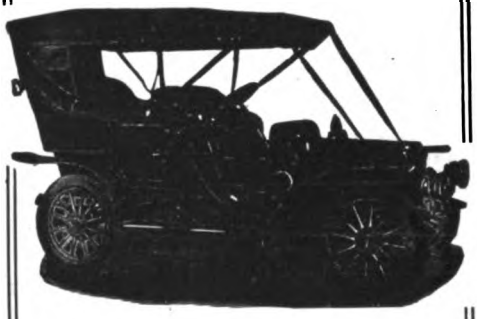

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ST. LOUIS Motor Car Co., Peoria, Ill. (see page 15).

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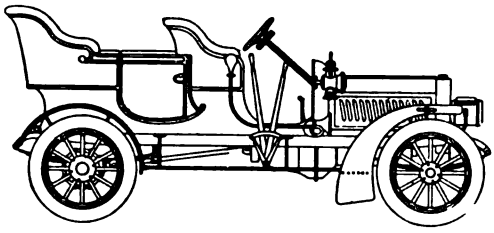

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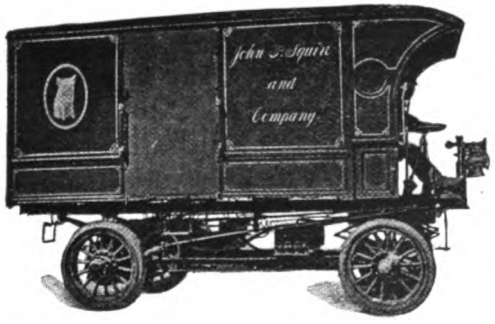

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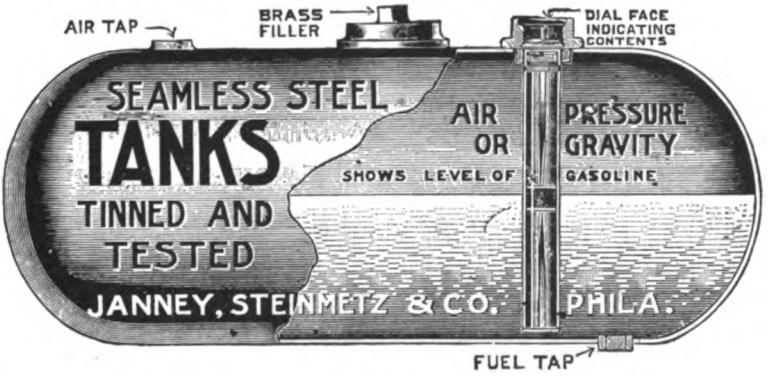

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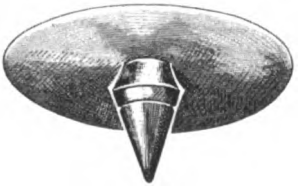
Punctures repaired quickly and permanently

TO BE INSERTED AS SHOWN ABOVE



Full Size, 1 1-2 Inch.

A quick relief for Tire Trouble

NO TIME LOST waiting for cement to dry. No leaky patches. Tight, permanent repairs.

Box containing four 1¼-inch P.D.Q. Plugs and four 1½-inch P.D.Q. Plugs, price $1.00.

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NATIONAL SALES CORPORATION, 296 Broadway, New York, Factory Sales Managers

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BRISTOL Co., Waterbury, Conn.

CAPITOL Elec. Engineering Co., Lansing, Mich.

CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DONGAN Instrument Co., Albany, N. Y.

DOW Portable Elec. Co., Braintree, Mass.

ELDREDGE Electric Mfg. Co., 227 Main St., Springfield, Mass. (see page 59).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FORT WAYNE Electric Works, Fort Wayne, Ind

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.

GENERAL Electric Co., Schenectady, N. Y.

JEWELL Elec. Instrument Co., Chicago, Ill.

KENDRICK & Davis, Lebanon, N. H.

KENT Mfg. Co., Atwater, 50 N. 6th St., Philadelphia, Pa. (see page 79).

KEYSTONE Electrical Instrument Co., 9th St. and Montgomery Ave., Philadelphia, Pa.

MORE-Power Co., 619 Gorham St., Lowell, Mass.

NORTON Electrical Instrument Co., Manchester, Conn.

PIGNOLET, Louis M., 78 Cortlandt St., New York, N. Y.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co., Hartford, Conn. (Importers) (see page 49).

QUEEN & Co., Philadelphia, Pa.

ROBERT Instrument Co. (The), 56 Shelby St., Detroit, Mich.

RUBAY, Leon, 136 West 38th St., New York City (Importer).

S. E. I. Co., Syracuse, N. Y.

STANLEY Elec. Mfg. Co., Pittsfield, Mass.

STERLING Electric Mfg. Co., 345 Huron St., Cleveland, O.

TALMONT Elec. Eng. Co., 88 Centre St., New York.

VOLTKAMP Elec. Co., 408 Jasper St., Baltimore, Md.

WAGNER Electrical Mfg. Co., 2017 Locust St., St. Louis, Mo.

WESTERN Electric Co., 259 So. Clinton St., Chicago.

WESTINGHOUSE Elec. & Mfg. Co., Pittsburg, Pa.

WESTON Electrical Instrument Co., Waverly Park, Newark, N. J.

WHITNEY Electrical Instrument Co., Concord, N. H.

ANTI-SKIDDING DEVICES

AMERICAN Tire Co., Owosso, Mich.

BAILEY & Co., C. J., 22 Boylston St., Boston, Mass.

BROWN Mfg. Co., J. C., Butler, Ind.

GALLIEN, A. E., 12 W. 33d St., N. Y. City.

HEALY Leather Tire Co., 88 Gold St., N. Y. City.

LEATHER Tire Goods Co., Newton Upper Falls, Mass. (see page opposite).

MESINGER Mfg. Co., H. & F., 1801 First Ave., N. Y. City.

N. Y. Broadway Rubber Tire Co., 253 West 47th St., New York City.

PENNSYLVANIA Rubber Co. of N. Y., 52d St. and Broadway, New York City.

SUNBURY Mfg. Co., Sunbury, O.

WEED Chain Tire Grip Co., 28 Moore St., N. Y. City.

WELLS Light Mfg. Co. (The), 44-46 Washington St., N. Y. City.

ANVILS

EAGLE Anvil Wks., Trenton, N. J.

APRONS (Storm)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 9).

FAIRFIELD Rubber Co., Fairfield, Conn.

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

KROH, C. Z., Mfg. Co. (The), Toledo, O.

PERFECTION Storm Shield Co., Clyde, O.

O'NEILL-Ollier Co., 1532-34 Michigan Ave., Chicago, Ill.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.

VEHICLE Apron & Hood Co., Columbus, O.

VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.

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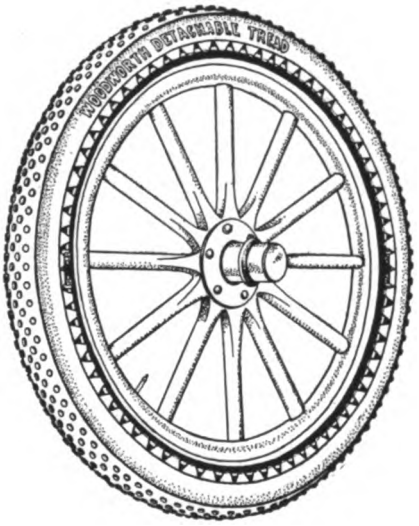

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WILEY & Son Co., Wm. H., Hartford, Conn. (see page 93).

WOOD & Son, Fred'k R., 219 W. 19th St., New York City.

ASBESTOS

ASBESTOS Mfg. Co., Philadelphia, Pa.

CAREY Mfg. Co., Philip (The), Lockland, O.

GILMOUR Co., R. M., New York, N. Y.

JOHNS-Manville, H. W., Co., 100 William St. N. Y. City.

KEASBY & Mattison Co., Ambler, Pa.

NEW Jersey Asbestos Co., Camden, N. J.

N. Y. ASBESTOS Mfg. Co., 123 Cortlandt St., N. Y. City.

WATSON, H. F., Co., Erie, Pa.

AXLE ENDS (See Drop Forgings)

AXLES

AMERICAN Air Tool Co., Dunkirk, N. Y.

AMERICAN Ball Bearing Co., Cleveland, O.

AMERICAN Roller Bearing Co., So. Framingham, Mass.

BORBEIN Auto Co., St. Louis, Mo.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

CITY Machine Co., 9-13 Orchard St., Detroit, Mich.

CONCORD Axle Co., Concord, N. H.

CONSOLIDATED Mfg. Co., Toledo, O.

DIAMOND Chain & Mfg. Co., Indianapolis, Ind.

DIRECT Drive Axle Co., The, 575 N. 4th St., Columbus, O.

GARFORD Co. (The), Elyria, O.

GILL & Sons Forge & Machine Works, P. H., Brooklyn, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

LEE & Porter, Buchanan, Mich.

REESE Mach. & Tool Works, 224 Main St., Plymouth, Pa.

SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page 151).

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.

TIMKEN Roller Bearing Axle Co., Canton, O.

WEBSTER Mfg. Co., 1075 West 15th St., Chicago, Ill.

WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

AXLES (Ball Bearing)

AMERICAN Ball Bearing Co., Seward Ave. and L. S. & M. S. Ry., Cleveland, O.

CASE Mfg. Co., Curtis and Lexington Aves., Columbus, O.

CITY Machine Co., Detroit, Mich.

GARFORD Co. (The), Elyria, O.

KIMBARK Co., S. D., 80-84 Mich. Ave., Chicago, Ill.

SMITH CO., A. O., Milwaukee, Wis.

STANDARD Roller Bearing Co., 48th and Girard Ave., Philadelphia, Pa.

WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

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AMER. Roller Bearing Co., So. Framingham, Mass.

CASE Mfg. Co., Curtis and Lexington Ave., Columbus, O.

CITY Machine Co., Detroit, Mich.

DALZELL Axle Co., So. Egremont, Mass.

MOFFETT Vehicle Bearing Co., Saginaw, W. S., Mich.

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STANDARD Roller Bearing Co., 48th St. & Girard Ave., Phila., Pa.

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WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

BALLS (Steel)

AMERICAN Ball Bearing Co., Cleveland, O.

AMERICAN Ball Co., Eagle St. and Kingsley Ave., Providence, R. I.

BOSTON Gear Works, Boston, Mass.

EXCELSIOR Machine Co., Military Road, Buffalo, N. Y.

JONES & Co., E. J., Arlington Heights, Mass.

STANDARD Roller Bearing Co., Philadelphia, Pa.

STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 154).

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GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 91).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

SARTUS Ball Bearing Co., 155 Spring St., N. Y. City.

STAR BALL Retainer Co., Lancaster, Pa.

BASKETS, HAMPERS AND TOURING CASES (See Hampers)

BATTERY CONNECTIONS (See Wire Terminals)

BATTERY HOLDERS

JACKSON Mfg. Co., 614 17th St., Denver, Colo.

BATTERIES (Primary)

ALPHA Dry Battery Co., 28 Cortlandt St., New York.

AMERICAN Battery Co., 170-172 S. Clinton St., Chicago, Ill.

AMERICAN Coil Co., Foxboro, Mass.

AMERICAN Electric Novelty Co., 308 Hudson St., N. Y. City.

BURNLEY Battery Co., Painesville, O.

CENTRAL Electric Mfg. Co., 1525 Second Ave., Rock Island, Ill.

COLUMBIA Dry Battery Co., 220 B'way, N. Y. City.

CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

DELTA Mfg. Co., Bloomfield, N. J.

DOW Portable Electric Co. (The), Braintree, Mass.

EASTERN Carbon Wks., W. Bergen, Jersey City, N. J.

EDISON Mfg. Co., Orange, N. J.

ELECTRIC Contract Co., 202 Centre St., N. Y. City.

ELECTRIC Storage Battery Co., Philadelphia, Pa.

EXCELSIOR Dry Battery Co., 34 Vesey St., New York City.

FORTO Electric Co., 52 Water St., N. Y. City.

FRENCH Battery Co., Madison, Wis.

GORDON Battery Co., 439-445 E. 144th St., N. Y. City.

MANHATTAN Electrical Supply Co., 17 Park Place, New York.

NATIONAL Carbon Co., Cleveland, O. (see page 145).

NEW Excelsior Dry Battery Co., 32 Vesey St., N. Y. City.

NON-POLARIZING Co., 28 Broome St., New York City.

NOVELTY Electric Co., Phila., Pa.

NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O.

ROCHE, Wm., 52-54 Park Place, N. Y. City.

ROCK Island Battery Co., Cincinnati, O.

ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 7).

SEMI-DRY Battery Co. (The), Newark, N. J.

SWAN Elec. Co., 21 State St., New York, N. Y.

U. S. Battery Co., New Rochelle, N. Y.

WESCO Supply Co. (The), 7th St. & Clark Ave., St. Louis, Mo.

WILHELM Battery Co., The H., 70-72 Frost St., Brooklyn, N. Y.

BATTERIES (Storage)

AMERICAN Battery Co., 172 South Clinton, Chicago, Ill.

AUTOMOBILE Parts & Equipment Co., 2228 Michigan Ave., Chicago Ill. (see page 25).

BADT-Goltz Engineering Co., 1504 Monadnock Bldg., Chicago, Ill.

BATTERY Power Co., 247-253 Madison St., Milwaukee, Wis.

CHICAGO Battery Co., Michigan Ave. and 14th St., Chicago, Ill. (see page 25).

CLARK, A. F. & Co., 2130 W. Susquehanna Ave., Philadelphia, Pa.

COLUMBUS Storage Battery Co., Columbus, Ohio.

CROFTAN Storage Battery Co., Toronto, Canada.

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

DAYTON Mfg. Co., 2240 E. 3d St., Dayton, O.

DELTA Mfg. Co., Bloomfield, N. J.

EDISON Storage Battery Co., Orange, N. J.

ELECTRIC Storage Battery Co. (The), Allegheny Ave and 19th St., Philadelphia, Pa.

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FRANCO-American Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

EVANSVILLE Battery & Electrical Co., Evansvile, Ind.

G. & C. Dry Battery Mfg. Co., 57 W. 3d St., N. Y. City.

GOULD Storage Battery Co., 25 West 33d St., N. Y. City.

HASCHKE Compound Storage Battery Co., 89 Ashland Blvd., Chicago, Ill.

HATCH Accumulator Co., Charlestown, Boston, Mass.

HELIOS Mfg. Co., Bridesburg, Pa.

MACRAE, Hector, 316 St. Paul St., Baltimore, Md.

MICHIGAN Storage Battery Co., 211 Jefferson Ave., Detroit, Mich.

NATIONAL Battery Co., 268-282 Mass. Ave., Buffalo, N. Y. (see page 27).

NEW England Motor Co. (The), 82 Fletcher St., Lowell, Mass. (see page 27).

NORTHWESTERN Storage Battery Co., Stephenson Bldg., Milwaukee, Wis.

PERRETT Storage Battery Co., 17 State St., N. Y. City.

PHILADELPHIA Storage Battery Co., Emerald and Tioga Sts., Philadelphia Pa.

PILE Bloc Co., 253 B'way, New York.

POST & Lester Co. (The), Hartford, Conn. (Importers) (see page 49).

ROYAL Battery Co., 143 Chambers St., N. Y. City (see page 7).

RUBAY, Leon, 136 West 38th St., N. Y. City (Importer).

RUCKERT, G. R., 13 E. 39th St., N. Y. City.

RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland. O.

SMITH Storage Battery Co., 198 State St., Binghamton. N. Y.

STORAGE Battery Supply Co., 239 East 27th St., N. Y. City.

TOLEDO Storage Battery & Elec. Co., 102 Ottawa St., Toledo, O.

TRAY Plate Battery Co. (The), 5 Frederick St., Binghamton, N. Y.

U. S. Battery Co. (The), New Rochelle, N. Y.

UNIVERSAL Elec. Storage Battery Co., Stock Exchange Bldg., Chicago, Ill.

VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.

WESTERN Storage Battery Co., Indianapolis, Ind.

WILLARD Storage Battery Co. (The), Cleveland, O.

WITHERBEE Igniter Co., 541 West 43d St., N. Y. City (see page opposite).

BEARINGS (Ball)

AMERICAN Ball Co., Providence, R. I.

AMERICAN Ball Bearing Co., Cleveland, O.

AUBURN Ball Bearing Co., Crane Bldg., Auburn, N. Y.

BANTAM Anti-Friction Co., Bantam, Conn.

CHAPMAN Double Ball Bearing Co., Sudbury St., Boston, Mass.

HESS-Bright Mfg. Co., 245 N. Broad St., Philadelphia, Pa.

LEE & Porter, Buchanan, Mich.

PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.

PRESSED Steel Mfg. Co., 545 The Bourse, Philadelphia, Pa.

RUBAY, Leon (Importer), 140 West 38th St., N. Y. City.

SARTUS Ball Bearing Co., 155 Spring St., N. Y. City.

STANDARD Roller Bearing Co., 48th St. and Girard Ave., Philadelphia, Pa.

STAR Ball Bearing Axle Co., Princeton, Ill.

WORCESTER Pressed Steel Co., Worcester, Mass.

BEARINGS (Bronze)

ADVANCE Mfg. Co., Kalamazoo, Mich.

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 45).

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

BUDA Fdry. & Mfg. Co., Chicago, Ill.

CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.

CLARK, John W., Albany, N. Y.

CRAMP, Wm. & Sons, Ship & Engine Building Co., Philadelphia, Pa.

Hofeller-Brooks Brass Fdry. Co., 74-78 Fort St., E. Detroit, Mich. (see page 55).

HOMER Brass Works, Inc., 231 Race St., Philadelphia. Pa.

LIGHT Mfg. & Fdry. Co., Pottstown, Pa.

PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.

PIONEER Brass Works, Indianapolis, Ind.

PROVIDENCE Brass Fdry. & Mach. Co., Providence, R. I.

REEVES & Son, Paul S., 1415 Catharine St., Philadelphia, Pa.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 47).

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

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CONCORD Axle Co., 26 Crescent St., Penacook, N. H.

HYATT Roller Bearing Co., 427 Middlesex St., Harrison, N. J.

MOFFETT Vehicle Bearing Co., 922 S. Niagara St., Saginaw, Mich.

PENNSYLVANIA Ball & Roller Bearing Co., Girard, Pa.

STANDARD Roller Bearing Co., Girard Ave. and 48th St., Phila., Pa.

TIMKEN Roller Bearing Axle Co., Canton, Ohio.

BELLS

ANSONIA Electrical Co., Ansonia, Conn.

BEVIN Bros. Mfg. Co., East Hampton, Conn.

BRIDGEPORT Brass Co., Bridgeport, Conn.

COLE & Son, Rockford, Ill.

EAST Hampton Bell Co. (The), East Hampton, Conn.

EDWARDS & Co., 405 E. 144th St., N. Y. City.

GONG Bell Mfg. Co., East Hampton, Conn.

HILL, N. N., Brass Co., East Hampton, Conn.

HOLTZER-Cabot Electric Co., Brookline, Mass.

LIBERTY Bell Co., Bristol, Conn.

MOSSBERG, Frank, Co., Attleboro, Mass.

NEW Departure Mfg. Co., Bristol, Conn.

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

PROCTOR-Raymond Mfg. Co., Detroit, Mich.

BODIES (Wood and Metallic)

ABRESCH Co., Charles, 398 4th St., Milwaukee, Wis.

AMERICAN Veneer Co., Kenilworth, N. J.

ARMSTRONG, M., & Co., 433 Chapel St., New Haven, Conn.

AUTO Body Co. (The), Franklin Ave., Lansing, Mich.

AUTO Body & Finishing Co., Amesbury, Mass.

BABCOCK Co., H. H., Watertown, N. Y.

BARNDT-Johnston Auto Supply Co. (The), Columbus, O. (see page opposite).

BIDDLE and Smart Co., Amesbury, Mass.

BORBEIN Auto Co., 2109-2111 N. 9th St., St. Louis, Mo.

BORCHERS Tonneau Mfg. Co., Dayton, O.

BRIDGEPORT Vehicle Co., Bridgeport, Conn.

BRIGGS Carriage Co., Amesbury, Mass.

BUCKEYE Carriage Body Co., Bellefontaine, Ohio.

BUOB & Scheu, 408 E. Court St., Cincinnati, Ohio.

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CARRIAGE Woodstock Co., Owensboro, Ky.

CENTRAL Mfg. Co., Connersville, Ind.

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DANN Bros. & Co. (The), 80-88 Franklin St., New Haven, Conn.

DEMOREST, A. L., New Haven, Conn.

DENNETT, G. P., Amesbury, Mass.

DETROIT Carriage Co., Detroit, Mich.

DETROIT Motor Car Supply Co., 1250 Jefferson Ave., Detroit, Mich.

ECLIPSE Buggy Co., Fort Wayne, Ind. (see page 117).

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

FRANTZ Body Mfg. Co. (The), Akron, O.

GOOLD, James Co., Albany, N. Y.

GRAVES & Congdon Co., Amesbury, Mass.

HAVENS Co. (The), Kokomo, Ind.

HILL Mfg. Co., 1396 West Ave., Buffalo, N. Y.

HOLCOMB, H. C., 105 Goffe St., New Haven, Conn.

HORTON, H. A., 127-131 Park St., New Haven, Conn.

HOWARTH & Rogers, Amesbury, Mass.

KEYSTONE Wagon Wks. Co., Reading, Pa.

KILLAM, Henry, Chestnut & Wooster Sts., New Haven, Conn.

KIMBALL & Co., C. P., 315 Michigan Ave., Chicago, Ill.

KIMBARK, S. D., 80-84 Michigan Ave., Chicago, Ill.

KOEN, James R., 1257 Niagara St., Buffalo, N. Y.

KUNDTZ, Theo., Cleveland, O.

LANE, T. W., Amesbury, Mass.

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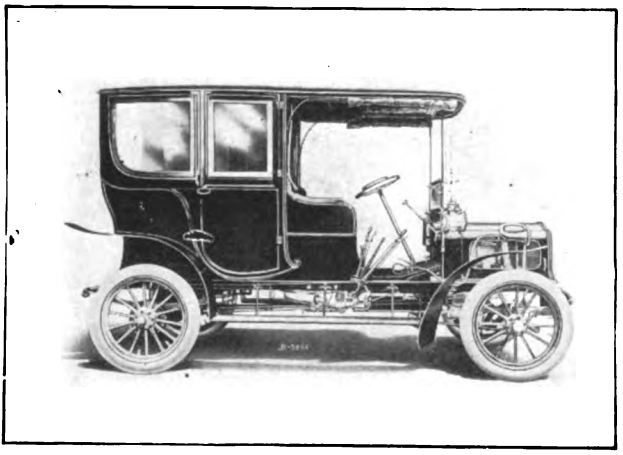
LIMOUSINES



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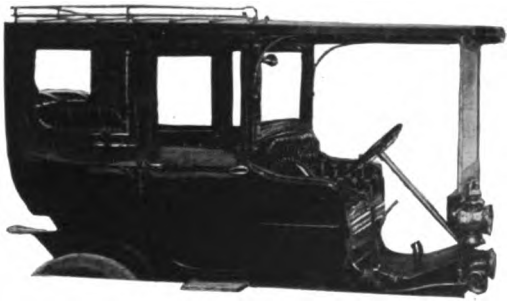

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LOCKE & Co., 218 W. 84th St., N. Y. City.

MICHIGAN Automobile Body Co. (The), 1425-41 Gratiot Ave., Detroit, Mich.

MIDDLETOWN Auto Body Co., Middletown Conn.

MILLER, A. J., Bellefontaine, O.

MILLER Bros., Amesbury, Mass.

MINOGUE Body & Seat Co., Kansas City, Mo.

MOORE & Munger Co., 602 W. 52d St., New York.

NEW HAVEN Carriage Co., New Haven, Conn. (see page 31).

NEWTON, W. H., & Son, 127 Elm St., Cortlandt, N. Y.

NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.

OHIO Carriage Body Co., Bellfontaine, O.

OHIO Scroll & Lumber Co., Covington, Ky.

PEEZ & Hoffman, 3d St., near Fowler, Milwaukee, Wis.

PETZELT & Keyser, 24th & Locust Sts., Philadelphia, Pa.

PITTSBURGH Reduction Co., Pittsburgh, Pa.

PONTIAC Body Co., Pontiac, Mich.

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SCHUBERT Bros. Gear Co., Oneida, N. Y.

SEABROOK & Smith Carriage Co., 126 Park St., New Haven, Conn.

SHIELDS Carriage Co. (The), Amesbury, Mass.

SPRINGFIELD Metal Body Co., 387 Birnie Ave., Brightwood, Mass. (see page 141).

STEWART, W. F. Co., The, Flint, Mich.

STONE & Sons, C., 167-177 Ogden Ave., Chicago, Ill.

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STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.

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YORK Wagon & Gear Co., York, Pa.

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WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

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FRANTZ Auto Co., Cherryville, Pa.

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OFELDT & Sons, F. W., Nyack-on-the-Hudson, N. Y.

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KALISCH Air Brake Co., 1317 Chestnut St., St. Louis, Mo.

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CALDWELL Co., The, 136 S. 4th St., Philadelphia, Pa.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

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AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FORG, Peter, Park St., Somerville, Mass.

LOCKE Regulator Co., Salem, Mass.

NATIONAL Equipment Co., Holland Bldg., St. Louis, Mo.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

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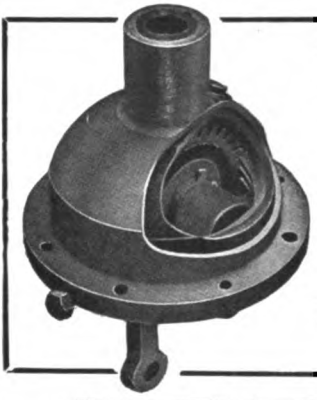

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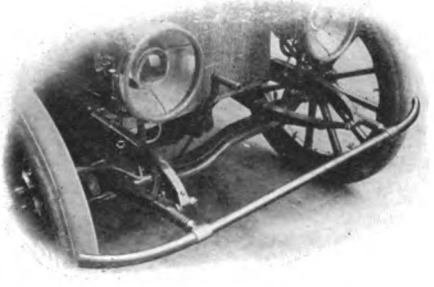

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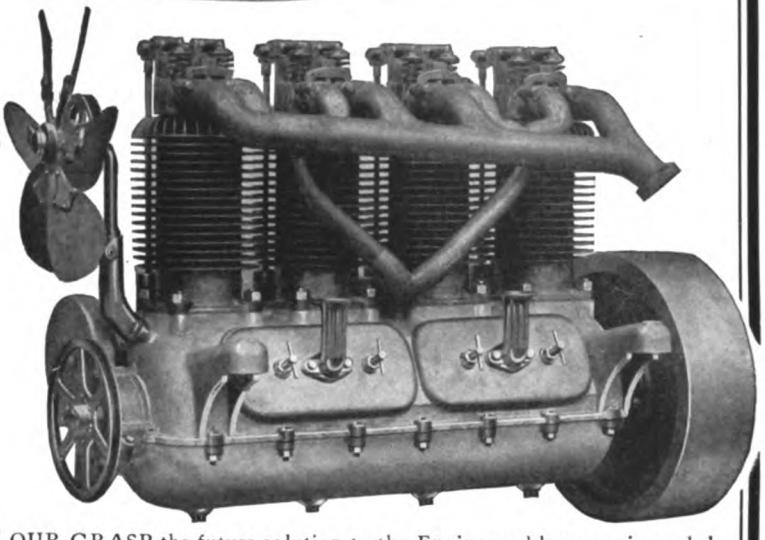

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KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

METAL Stamping Co., 243 West St., N. Y. City.

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TAYLOR Co., H. D., 101-105 Oak St., Buffalo, N. Y.

WING Co., Chas., Amesbury, Mass.

WOODRUFF & Sons Co., Walter W., Mount Carmel, Conn.

CASES (Engine, Gear and Chain)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 9).

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DETROIT Auto. Top Co., Detroit, Mich.

REEDY, W. E., Lima, O.

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

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We Sell to the Trade ONLY

AUTOMOBILE SUPPLIES AND ACCESSORIES

SEND FOR QUOTATIONS

EUGENE ARNSTEIN, Manufacturer and Jobber

35th St. and Shields Ave., CHICAGO

ARNSTEIN'S CEMENTS **ARNSTEIN'S ENAMELS**

Has Stood the Test for Over 10 Years

PATENTED

The Peerless Curtain Fastener Has No Sprin s.

Warranted to Outlast the Car.

Made to clinch, drive, screw or rivet, in Solid Brass Polished and Lacquered or Japanned to match materials. Price lower than any other Fastener.

Beware of inferior imitations.

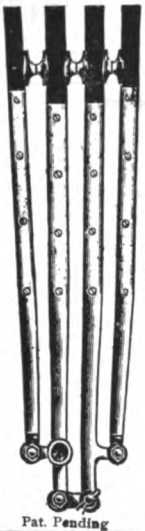
Ask your supply house or write us for free samples and prices.

The F. A. NEIDER CO.

AUGUSTA, KY.

Ask for No. 7 Catalogue of clinch buttons, knobs and fasteners.

TOP FIXTURES



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HEADQUARTERS FOR

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Bow Separator-liners, Snaps, Bows, Seat Bendings, Curtain Fasteners, Mud Guards, Fenders, Bolts and Nuts

ALSO

MUD GUARDS DASHES and TOOL BOXES.

Liberal Discount to the Trade

C.W.COOPS CO. 3 Appleton St. BOSTON, MASS

OUR TIRE ADJUSTERS WILL PUT ON OR TAKE OFF ANY TIRE WITHOUT EXERTION

The "Minute" clincher tire adjuster will actually take off or put on the **heaviest clincher tire in one minute** without injury to the shoe or inner tube and may be easily operated by a woman or child. The L & M ring tire adjuster is the only ring tire adjuster on the market. It consists of six tools which are slipped over the tire at intervals and by turning crank the tire is forced back from the ring all the way round, thus enabling you to put on or take off the ring with ease. **Write to-day for catalog and discount sheet.**

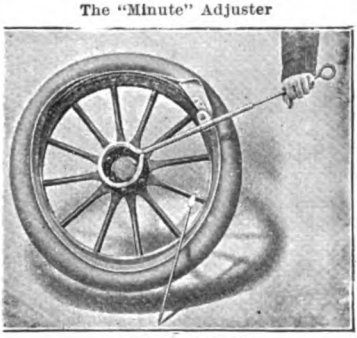
Patents applied for.

Dealers Wanted.

Large Discounts.

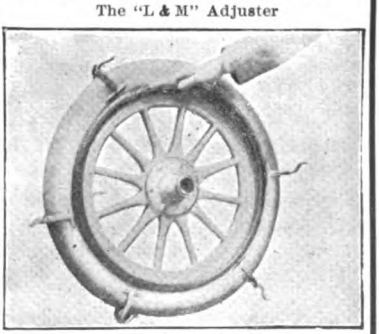
LONG & MANN CO.
527 Central Building,
Rochester, N. Y.

The "Minute" Adjuster



For Clincher Tires

The "L & M" Adjuster



For Ring Tires

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CASTINGS (Brass, Bronze, Aluminum and Copper)

ACORN Brass Mfg. Co., Chicago, Ill.

ALLEN Mfg. Co., W. D., 151 Lake St., Chicago, Ill.

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page opposite).

ALUMINUM Foundry Co., Manitowoc, Wis.

AMERICAN Brass Fdry. Co., Hyde Park, Mass.

AMERICAN Fdry. & Mach. Co., Hanover, Pa.

AMERICAN Pin Co., Waterbury, Conn.

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

BUCKEYE Iron & Brass Wks., 324 E. 3d St., Dayton, O.

CALDWELL Co. (The), 136 S. 4th St., Philadelphia, Pa.

CHAPMAN & Co., J. B., 51 Taylor St., Springfield, Mass.

CHICAGO Hardware Fdry. Co., North Chicago, Ill.

CLARK, John W., Albany, N. Y.

CLUM & Atkinson, 575 Lyell Ave., Rochester, N. Y.

COLUMBUS Brass Co., Columbus, O.

CRAMP & Sons Ship & Engine Building Co., Wm., Philadelphia, Pa.

ELKHART Brass Mfg. Co., Prospect St., Elkhart, Ind.

ELM CITY Brass Co., New Haven, Conn.

ENTERPRISE Foundry Co., Detroit, Mich.

EUREKA Tempered Copper Wks., Northeast, Pa.

FOREST City Brass Wks., Cleveland, O.

GAYLORD Co., F. L., Ansonia, Conn.

GERSON-Carey Co., Lansing, Mich.

GLOBE Malleable Iron Co., Syracuse, N. Y.

GRAHAM, James & Co., 293 Wooster St., New Haven, Conn.

HENDRYX & Co., Andrew B., New Haven, Conn.

HOFELLER Brass Fdry. Co., 100 Terrace, Buffalo, N. Y.

HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 55).

HOMER Brass Works, Inc., 231 Race St., Philadelphia, Pa.

HUMPHREYS Mfg. Co., Mansfield, O.

IMPERIAL Brass Mfg. Co. (The), 251 So. Jefferson St., Chicago, Ill. (see page 81).

JEFFERSON Brass Foundry, Brooklyn, N. Y.

KEYSTONE Brass Fdry. Co., 188 Berks St., Philadelphia, Pa.

KOKOMO Brass Wks., 351 N. Smith St., Kokomo, Ind.

LANGSENKAMP Bros., Indianapolis, Ind.

LIBERTY Bell Co., Bristol, Conn.

LIGHT Mfg. & Fdry. Co., Pottstown, Pa.

LOUGH-Scott Co. (The), 26 Cortlandt St., N. Y. City.

MANHATTAN Brass Co., New York, N. Y.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 89).

NEW JERSEY Aluminum Co., 19th and Springfield Ave., Newark, N. J.

NIAGARA Falls Brass Wks., Niagara Falls, N. Y.

NOLTE Brass Co., Springfield, O.

NON-CORROSIVE Metal Co. (Inc.), Watertown, Mass.

NOONAN Tool & Machine Wks., Rome, N. Y.

NORWALK Brass Co., Norwalk, Conn.

OBERDORFER Brass Co., M. L., 804 East Water St., Syracuse, N. Y.

OHIO Brass Co., Mansfield, O.

PHOSPHOR Bronze Smelting Co., Philadelphia, Pa.

PIONEER Brass Works, Indianapolis, Ind.

PITTSBURG Brass Mfg. Co., 3153 Penn Ave., Pittsburg, Pa.

PITTSBURG Reduction Co., Pittsburg, Pa.

PROVIDENCE Brass Foundry & Machine Co., Providence, R. I.

RACINE Brass & Iron Co., Racine, Wis.

REEVES & Son, Paul S., 1415 Catherine St., Philadelphia, Pa.

RYAN & Co., J. J., 68-74 W. Monroe St., Chicago, Ill.

SHERWOOD Brass Works, 1167 Jefferson Ave., Detroit, Mich.

SPENCER'S Sons, I. S., Guilford, Conn.

STANDARD Foundry Co., Hartford, Conn.

STOVER Mfg. Co., Freeport, Ill.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 47).

TURNER Brass Wks., Franklin & Michigan Sts., Chicago, Ill.

UNIQUE Metal Co., 89-91 Niagara St., Buffalo, N. Y.

UNITED States Aluminum Co., Pittsburg, Pa.

U. S. Aluminum Castings Co., Hamilton & Vandalia Aves., Cincinnati, O.

U. S. Bronze Co., 149 Columbus St., Cleveland, O.

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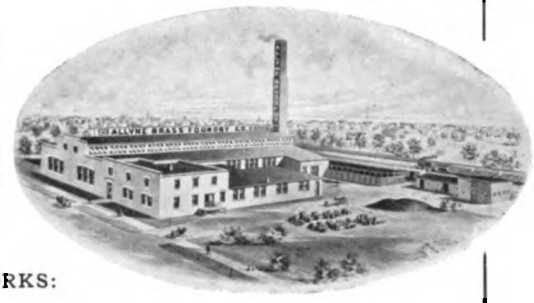
...THE...

ALLYNE BRASS FOUNDRY CO.



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CLEVELAND and DETROIT

ALUMINUM CASTINGS

LARGEST PRODUCERS OF ALUMINUM CASTINGS IN THE UNITED STATES

FACILITIES INCREASED. SHOPS DOUBLED. ORGANIZATION IMPROVED

That our work is superior in every respect is attested by the fact that we supply annually upwards of seven hundred and fifty tons of Aluminum Castings to thirty-five leading automobile manufacturers, most of whom buy exclusively from us

WE ARE READY FOR A BUSY YEAR
WRITE US ABOUT YOUR REQUIREMENTS

THE ALLYNE BRASS FOUNDRY CO.

CLEVELAND AND DETROIT

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VINCENT Valve Co., Sandusky, O.

WALTHAM Brass & Aluminum Co., Waltham, Mass.

WESTERN Brass Mfg. Co., 21st and Rockwell St., Chicago, Ill.

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

WOODRUFF & Sons Co., Walter W., Mount Carmel, Conn.

CASTINGS (Gray Iron)

ACME Fdry. Co., Sweeney St., Cleveland, O.

AMERICAN Fdry. & Mach. Co., Hanover, Pa.

BARCUS & Co., Geo., Wabash, Ind.

BARLOW, Arthur E., 28 Orange St., Newark, N. J.

BELLE CITY Mfg. Co., Racine Junction, Wis.

BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.

BUFFALO Foundry Co., Buffalo, N. Y.

CAPITOL Foundry Co., Hartford, Conn.

CHICAGO Hardware Fdry. Co., North Chicago, Ill.

CRAMP & Sons Ship. & Eng. Bldg. Co., Wm., Philadelphia, Pa.

ENTERPRISE Fdry. Co., Detroit, Mich.

ERIE Fdry. Co., Erie, Pa.

FERRO Machine & Fdry. Co. (The), Cleveland, O.

FULTON Fdry. & Mach. Wks., 25 Furman St., Brooklyn, N. Y.

GREY Iron Castings Co., Mt. Joy, Pa.

HAYES Foundry Co., Lynn, Mass.

HOLBROOK-ARMSTRONG Iron Co., Racine, Wis.

HOPSON & Chapin Mfg. Co., New London, Conn.

INDIANAPOLIS Foundry Co., Indianapolis, Ind.

INTER-State Foundry Co., Cleveland, O.

LELAND & Faulconer Mfg. Co., Detroit, Mich.

LOUGH-Scott Co. (The), 26 Cortlandt St., N. Y. City.

MANUFACTURERS' Fdry. Co., Waterbury, Conn.

MARINETTE Gas Eng. Co., Chicago Heights, Ill.

MASSEY Machine Co., Watertown, N. Y.

MEEKER Fdry. Co., 95 Clay St., Newark, N. J.

PALMERS & De Mooy Fdry. Co., Cleveland, Ohio.

RACINE Brass & Iron Co., Racine, Wis.

SESSIONS Foundry Co., Bristol, Conn.

SPENCER'S Sons, I. S., Guilford, Conn.

STANDARD Fdry. & Mfg. Co., Cleveland, O.

STOVER Mfg. Co., Freeport, Ill.

STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.

TARRANT Foundry Co., Chicago, Ill.

UTICA Foundry Co., Utica, N. Y.

UTICA Steam Eng. & Boiler Wks., Utica, N. Y.

WESTERN Malleable Steel Co., 1250 River St., Detroit, Mich.

WESTERN Motor Co., Logansport, Ind.

WILCOX, Crittenden & Co., Middletown, Conn.

CASTINGS (Malleable Iron)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.

ARCADE Malleable Iron Co., Worcester, Mass.

BARLOW, Arthur E., Newark, N. J.

BEAVER Dam Malleable Iron Co., Beaver Dam, Wis.

BRIDGEPORT Malleable Iron Co., Bridgeport, Conn.

BUHL Malleable Iron Co., Detroit, Mich.

COLUMBUS Malleable Iron Co., Columbus, O.

DAYTON Malleable Iron Co., Dayton, O.

EBERHARD Mfg. Co. (The), Cleveland, O.

FLAGG & Co., Stanley G., Philadelphia, Pa.

FRAZER & Jones Co., Syracuse, N. Y.

ILLINOIS Malleable Iron Co., 535 Diversly Blvd., Chicago, Ill.

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

LOUGH-Scott Co., 26 Cortlandt St., N. Y. City.

MALLEABLE Iron Fittings Co., Branford, Conn.

MEEKER Fdry. Co., 95 Clay St., Newark, N. J.

MINNESOTA Malleable Iron Co., St. Paul, Minn.

MOLINE Malleable Iron Co., St. Charles, Ill.

NATIONAL Malleable Castings Co., Cleveland, O.

NAUGATUCK Malleable Iron Co., Naugatuck, Conn.

NORWAY Iron & Steel Co., York, Pa.

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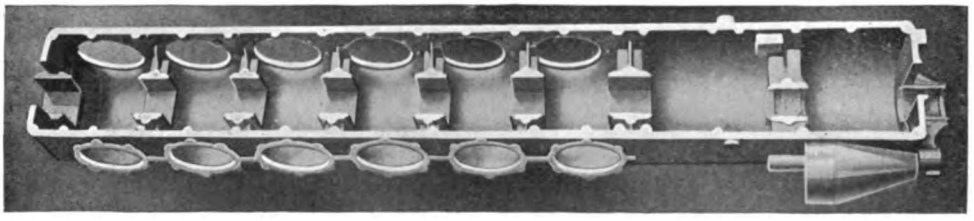
WHEN YOU ORDER

ALUMINUM CASTINGS

You Usually Want Them in a Hurry



Our facilities are second to none.

We have just completed an addition to our Syracuse plant which more than doubles our capacity.

We have established a branch foundry in Rochester, N. Y., where we have as much room as at Syracuse.

Including this branch we now have four times the capacity we had last year.

A stock of over 100,000 lbs. of Aluminum insures you prompt deliveries.

It is not necessary for us to talk about the quality of our output. Everybody knows it is the Best.

THE PROOF OF THE CASTING
IS IN THE SERVICE IT GIVES.

SYRACUSE ALUMINUM & BRONZE CO.

SYRACUSE, N. Y.

THOMAS J. WETZEL, Eastern Sales Agent, 29 W. 42d St., New York

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OSHKOSH Malleable Iron Co., Oshkosh, Wis.

PORT HURON Engine & Thresher Co., Port Huron, Mich.

RACINE Malleable & Wrought Iron Co., Racine, Wis.

RHODE ISLAND Malleable Iron Wks., Hills Grove, R. I.

SOUTH Side Steel & Malleable Casting Co., Windlake & 14th Aves., Milwaukee, Wis.

STOWELL Mfg. & Fdry. Co., So. Milwaukee, Wis.

SYRACUSE Malleable Iron Wks., Syracuse, N. Y.

TRENTON Malleable Iron Co., Trenton, N. J.

WILMINGTON Malleable Iron Co., Wilmington, Del.

CASTINGS (Steel)

ACME Steel & Malleable Iron Wks., 245 Military Road, Buffalo, N. Y.

ADRIAN Steel Casting Co., Adrian, Mich.

AMERICAN Steel Castings Co., Chester, Pa.

ARCADE Malleable Iron Co., Worcester, Mass.

ATHA Steel Co., Newark, N. J.

BETHLEHEM Steel Co., So. Bethlehem, Pa.

BUFFALO Crucible Casting Co., 25 Washington St., Buffalo, N. Y.

CARPENTER Steel Co. (The), Reading, Pa.

CHESTER Steel Castings Co., Chester, Pa.

CHROME Steel Works, Brooklyn, N. Y.

CRUCIBLE Steel Castings Co., Milwaukee, Wis.

DUTCHER Co., J. A. & P. E., Milwaukee, Wis.

FERRO Carbon Castings Co., Frankford, Philadelphia, Pa.

FLAGG & Co., Stanley G., Philadelphia, Pa.

FRAZER & Jones Co., Syracuse, N. Y.

JOHNSON & Co., Isaac G., Spuyten Duyvil, N. Y.

JOHNSTON, Geo. H., P. O. Box 13, Sparrows Point, Md.

LELAND & Faulconer Mfg. Co., Detroit, Mich.

LOGAN Mfg. Co., Phoenixville, Pa.

LOUGH-Scott Co. (The), 26 Cortlandt St., N. Y. City.

MACKINTOSH, Hemphill & Co., Pittsburg, Pa.

MASSACHUSETTS Steel Casting Co., West Everett, Mass.

MESTA Machine Co., Pittsburg, Pa.

MILWAUKEE Steel Fdry. Co., Milwaukee, Wis.

N. E. Steel Castings Co., Hdye Park, Mass.

NEWARK Iron & Steel Co., Newark, O.

NEW JERSEY Steel Co., Rahway, N. J.

NORWAY Iron & Steel Co., York, Pa.

OTIS Steel Co., Cleveland, O.

PROVIDENCE Steel Castings Co., 164 Allens Ave., Providence, R. I.

RIVERSIDE Foundry, The, 451-473 Riverside Ave., Newark, N. J.

SMITH Steel Castings Co., Geo. H., 500 Clinton St., Milwaukee, Wis.

TAYLOR Iron & Steel Co., High Bridge, N. Y.

TOBIN-Gerlinger Steel Castings Co., West Allis, Wis.

TOOL Steel Castings Co., 90 Canal St., Boston, Mass.

UNIFORM Steel Co., Newark, N. J.

WESTERN Malleable Steel Co., 1250 River St., Detroit, Mich.

WHITELEY Steel Co., Muncie, Ind.

WILMINGTON Malleable Iron Co., Wilmington, Del.

WORCESTER Steel Foundry Co., Worcester, Mass.

CEMENT (Tire)

AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page opposite).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BROOKLYN Rubber Co., 397 Summer Ave., Brooklyn, N. Y.

BUFFALO Specialty Co., Buffalo, N. Y.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

G. A. HOSMER Co., 376 Ellicott St., Buffalo, N. Y.

LYON Rubber Co., Akron, O.

MAGNET Cement & Dressing Co., 878 No 48th St., Philadelphia, Pa.

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Importers and Wholesalers of

Motor Goods for the Trade

LARGEST IMPORTERS OF MOTOR GOODS IN AMERICA

EXCLUSIVE AMERICAN AGENTS AND DISTRIBUTERS FOR:

Volier Horns, E. I. C. Ignition Specialties, Duray Goggles, Rival Horns, Jacques' Volt-ammeters, etc.
Royal de Luxe Lamps, Neverskip Plugs, Royal Hampers, Imperial Clocks, Luna Clocks, Watertite Tire Jackets, Immunity Cable, P. & L. Clothing and Gloves, Accuro Volt-ammeters, Surespark Plugs, Lubro-Visco Oils and Greases, and a complete stock of all standard motor goods of other makes

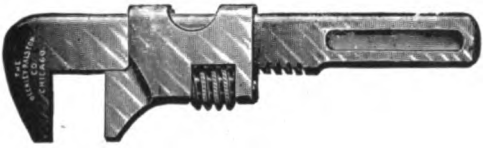
COMPLETE CATALOG ON REQUEST

THE POST & LESTER CO., Hartford, Conn.

MOTOR SUPPLIES

OF ALL KINDS **ALL LEADING MAKES CARRIED IN STOCK**

Some of Our Specialties



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B-R 9-INCH AUTO WRENCH

B-R 9-inch wrenches. Polished finish. Price, postpaid, 75c. Besides several different finishes of above we also make the same style in 18-inch and similar ones in 11 and 14-inch, with tire lever handles. Forged from high carbon steel, carefully machined, accurately fitted and handsomely finished.

B-R CHAIN REPAIR TOOL

Holds chain in position while repair is being made. Postpaid, car size, 25c.; shop size, 35c.

MAXWELL TIRE TONGS

One of the most successful tire tools. Light, strong, compact, yet does the work easily and quickly. Rawhide wrapped preventing injury to casing. Prepaid, each $2.00.

We carry a general jobbing line of all kinds of SUPPLIES for MOTOR CARS, MOTOR BOATS, and MOTORCYCLES. OUR CLAIMS—Prompt shipments, no substitutions, clean, new goods, low prices. Our Catalog on request.

THE BECKLEY-RALSTON CO.

79-81-83 Michigan Avenue **CHICAGO.**

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NATIONAL Cement & Rubber Mfg. Co., Toledo, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

CHAINS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

DIAMOND Chain & Mfg. Co., Indianapolis, Ind.

DUCKWORTH Chain & Mfg. Co., Springfield, Mass.

LEFEVRE Arms Co., Syracuse, N. Y.

LINK Belt Co., Chicago, Ill.

LINK Belt Engineering Co., Nicetown, Pa.

MILLER, Chas. E., 97 Reade St., N. Y. City. (Importer).

MORSE Chain Co., Trumansburg, N. Y.

WHITNEY Mfg. Co. (The), Hartford, Conn.

CHANNELS

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

GARFORD Co. (The), Elyria, O.

STANDARD Welding Co., Cleveland, O.

WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

CHARGING EQUIPMENT (Electrical)

ADVANCE Mfg. Co., Hamilton, O.

BAKER Motor Vehicle Co., Cleveland, O.

BENJAMIN Electric Mfg. Co., 42 W. Jackson Blvd., Chicago, Ill. (see page 69).

BRONSON & Davis, 463 Fairmount Ave., Blue Island, Ill.

BULLOCK Electric Mfg. Co., Cincinnati, O.

COOPER-Hewitt Electric Co., 220 W. 29th St., N. Y. City.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

GENERAL Elec. Co., Schenectady, N. Y.

GENERAL Power Co. (The), 100 William St., N. Y. City.

M'MULLIN Motive Power & Construction Co., 472 Carroll Ave., Chicago, Ill.

MERRIAM-Abbott Co., 60 E. Prospect St., Cleveland, O.

NEW England Motor Co., Lowell, Mass. (see page 27).

RICHARDSON Engineering Co., Hartford, Conn. (see page 123).

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

WAGNER Electrical Mfg. Co., 2017 Locust St., St. Louis, Mo.

WESTINGHOUSE Electric & Mfg. Co., Pittsburg, Pa.

CLEVICES (See Screw Machine Products)

CLOCKS (Auto)

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

CHELSEA Clock Co., 16 State St., Boston, Mass. (Auto and Motor Boat) (see page opposite).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

LEVY, Manasseh, 182 Broadway, New York.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

WILSON Auto. Clock Co., 935 Arch St., Philadelphia, Pa.

WHEELOCK Motor Car Clock Co., Tremont Bldg., Boston, Mass.

CLOTHING (Auto)

AMERICAN Buffalo Robe Co., Buffalo, N. Y.

AUTO Garment Co., 208 B Ave., Cedar Rapids, Ia.

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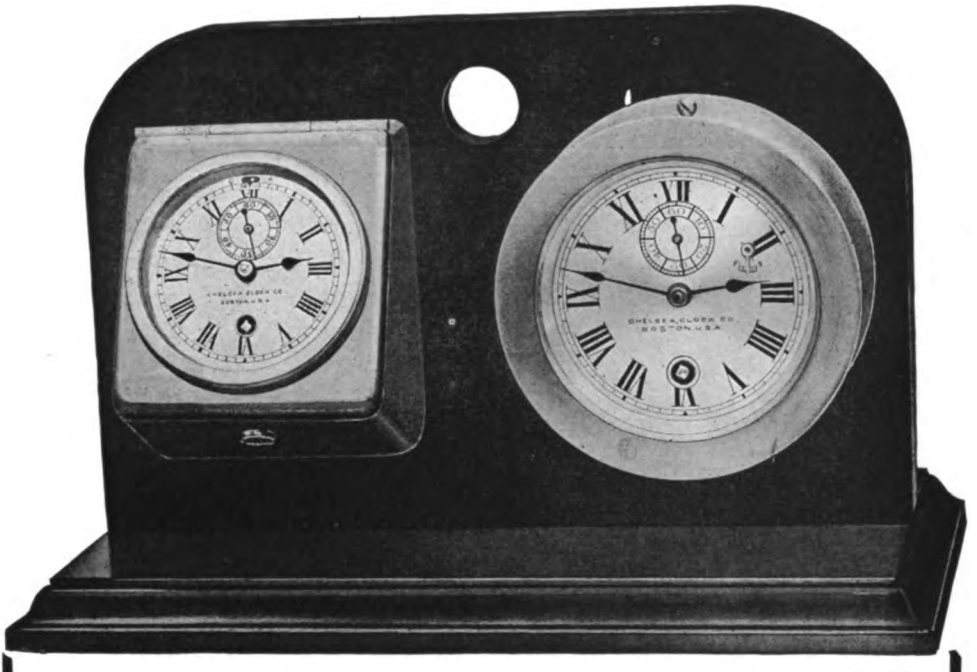

THE JUSTLY CELEBRATED—8-DAY—HIGH GRADE

THE "CHELSEA" AUTO CLOCK

(TRADE MARK)

BEST IN THE WORLD

¶ Clocks built with a view to stand the jars and jolts and rough riding of Automobiles. Reputation the highest. Used by parties demanding the BEST

PRICE LIST

In "Special" Cases (Design of Case Patented Dec. 19, 1905)	In "Round" Cases
2¾ inch "Special" Auto Clock, $36	2¾ inch Auto Clock, $26
3½ inch "Special" Auto Clock, $45	3½ inch Auto Clock, $28
3½ inch "Special" Motor Clock, $41	3½ inch Motor Clock, $24

Wood Stands, if wanted by Dealers, viz.: for showing two clocks, $2.00; for showing one clock, $1.50

Sizes stated are the approximate diameters of the dials.

Above illustration shows in reduced size the 2¾ inch "SPECIAL" Auto Clock and 3½ inch (Round Cased) MOTOR Clock. The sizes are the approximate diameters of the dials. All are in Duplex (Patent applied for) Polished Cast Brass Cases, the most thoroughly waterproof case on the market. The "SPECIALS" show dial on angle; its clock when removed from outer (locked) case is excellent for use on mantels, bureaus, etc.; very convenient when touring. Outer case secured to dashboard by hidden screws. The 3½ inch MOTOR Clock is a strong, reliable clock, but the AUTO Clocks have a somewhat finer train. You want the BEST? Ask for the "CHELSEA."

CHELSEA CLOCK CO., 16 State Street, Boston

Makers of exclusively 8-Day High Grade Ship's Bell Clocks, Marine Clocks and Auto Clocks

MORGAN & ALLEN CO., 717 Market Street, San Francisco, Sales Agents for the Pacific Coast

YOU want the BEST? Ask for the "CHELSEA"

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BISHOP & Co., The J. H., Wyandotte, Mich.

BRANN, E., 1225 Park Ave., N. Y. City.

BROOKS Bros., 22d St. & B'way, N. Y. City.

CROSBY Frisian Fur Co., 116 Mill St., Rochester, N. Y.

DAVIS Robe Co., The, Inc., 1307 Champlain Bldg., Chicago.

DEMMERLE & Co., 248 W. 23d St., N. Y. City.

DOUGHERTY & Colt Mfg. Co., 105 W. Bridge St., Columbus, O.

FULLER & Sullivan, 19 Elliott St., Boston, Mass.

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

GUNTHER'S Sons, G C., 184 5th Ave., N. Y. City.

HANSEN Mfg. Co., O. C., 356 E. Water St., Milwaukee, Wis. (see page 71).

HODGMAN Rubber Co., 806 Broadway, N. Y. City.

LADIES' Supply Co., 3118-3120 Forest Ave.,

LILLEY, M. C., & Co., Columbus, O. Chicago, Ill.

MACULLAR-Parker Co., Boston, Mass.

MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.

MILFORD Auto. Coat Co. (The), Milford, Mass.

MOORE-Smith Co., Boston, Mass.

MORAWETZ Co. (The), 343 Broadway, Milwaukee, Wis.

N. Y. Leather Coat Co., 207 Greene St., New York.

OUR Own Mfg. Co., 568-574 Broadway, New York.

PIONEER Woolen Mills, 1120 Beaufait St., Detroit, Mich.

ROGERS, Peet & Co., N. Y. City.

RUSZITS, John, Fur Co., 73-77 Mercer St., N. Y. City.

SAKS & Co., 34th St. & B'way, N. Y. City.

SCANDINAVIAN Fur & Leather Co., 16 W. 33d St., New York, N. Y.

SCOTT-Muffler Co. (The), 71 Gallia St., Portsmouth, O. (see page opposite).

SHUMAN, A., & Co., Boston, Mass.

SMITH, Gray & Co., N. Y. City.

SMITH, Crary & Davidge, 174 Water St., Binghamton, N. Y.

SPEAR-Martin Fur Co., Burlington, Vt.

SPRAGUE, F. H. Co., Orange, Mass.

WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

WESTERN Robe Co., Detroit, Mich.

CLUTCHES (Speed Changing)—(See Gears)

CLUTCHES

BLEVNEY, John C., 216 High St., Newark, N. J.

CARLYLE & Johnson Machine Co., Hartford, Conn.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

DOUBLE-Friction Coil Clutch Co., 45 Canal St., Chicago, Ill.

GARFORD Co. (The), Elyria, O.

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 91).

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

MUNCIE Auto Parts Co., Muncie, Ind.

NATIONAL Brake & Clutch Co., 16 State St., Boston, Mass.

SMITH Co., A. O., Milwaukee, Wis.

SPEED Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind. (see page 41).

STURTEVANT Mill Co., Harrison Sq., Boston, Mass.

UNIVERSAL Clutch Co., 226 S. 11th St., Philadelphia, Pa.

COLUMNS (See Water Alarms & Columns)

COMMUTATORS (See Controllers, Electric)

COMPRESSORS (Air)

CHICAGO Pneumatic Tool Co., 1010 Fisher Bldg., Chicago, Ill.

CROWELL, Gilmer, 292-296 Graham St., Brooklyn, N. Y.

FERODOWILL Mfg. Co., St. Paul, Minn.

HUMPHREYS Mfg. Co., Mansfield, Ohio.

KALISH Air Brake Co., 1317 Chestnut St., St. Louis, Mo.

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All in One Piece, Simple, Complete, etc., and Easy to Adjust

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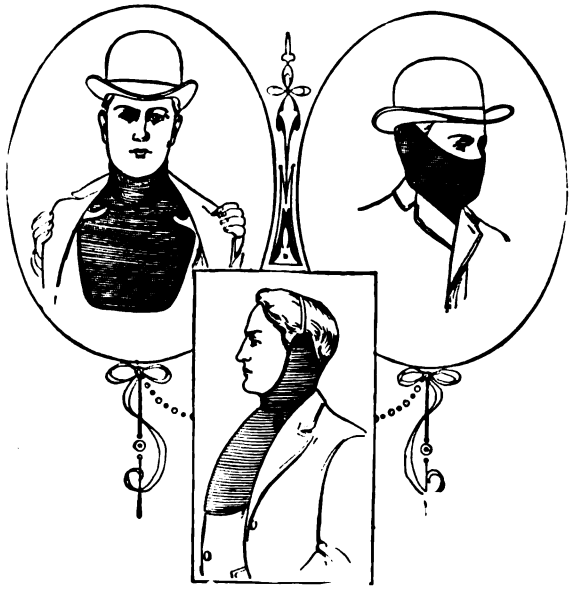
June 16, 1903

Nov. 8, 1904

Jan. 30, 1906



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PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

VICTOR Electric Co., 55-61 Market St., Chicago, Ill.

WESTINGHOUSE Air Brake Co., Pittsburg, Pa.

COMPRESSORS (Register)

AUTO Novelty Co., Milwaukee, Wis.

CONDENSERS

CHICAGO Auto. Mfg. Co., 4230 State St., Chicago, Ill.

NATIONAL Oil Burner & Equipment Co., Holland Bldg., St. Louis, Mo.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 113).

CONNECTING RODS

ANDERSON Forge & Machine Co., Detroit, Mich.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

ERIE Forge Co., Erie, Pa.

GILL & Sons Forge & Machine Works, P. H., Brooklyn, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

STANDARD Connecting Rod Co., Beaver Falls, Pa.

CONNECTORS, Wire (See Wire Terminals)

CONTROLLERS (Electric)

ELECTRIC Vehicle Equipment Co., 20th St. & Montgomery Ave., Philadelphia, Pa.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

GENERAL Electric Co., Schenectady, N. Y.

KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.

LAMB & Co., Kent and Lyon Sts., Grand Rapids, Mich.

LINCOLN Electric Co., Cleveland, O.

WESTINGHOUSE Elec. and Mfg. Co., Pittsburg, Pa.

COOLERS (See Radiators)

COUPLINGS (Brass) (See Also Fittings—Pipe)

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

LUNKENHEIMER Co. (The), Cincinnati, O.

COUPLINGS (Hose)

DOYLE Hose Union Co. (The), 810 Ann St., Homestead, Pa.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

MORGAN, B., Newport, R. I.

PITTSBURG Hose Connector Co., Pittsburg, Pa.

COVERS (Auto)

BURGIN Bros., Springfield, Mass.

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

LANDERS Bros. Co., 445 10th St., Toledo, O. (see page 143).

VEHICLE Apron and Hood Co., Columbus, Ohio.

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

CRANK SHAFTS

ANDERSON Forge & Machine Co., Detroit, Mich.

BILLINGS & Spencer Co., Hartford, Conn.

BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

ERIE Forge Co., Erie, Pa.

GILL & Sons, P. H., Forge & Mach. Wks., Brooklyn, N. Y.

LELAND, W. H., & Co., 6 Sheridan St., Worcester, Mass.

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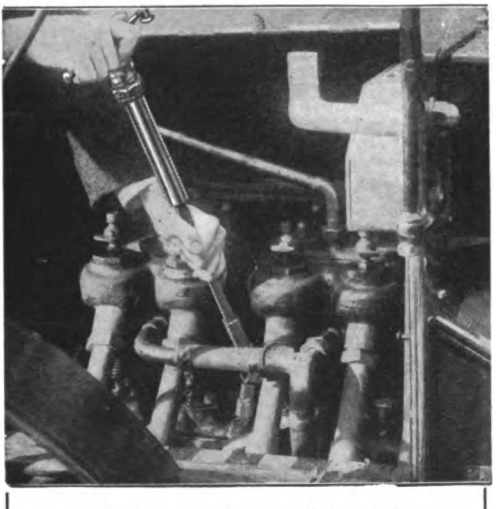

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STANDARD Welding Co., Cleveland, O.

TINDEL-MORRIS Co., Eddystone, Pa.

WYMAN & Gordon, 30 Bradley St., Worcester, Mass.

CRUCIBLES

BRIDGEPORT Crucible Co., Bridgeport, Conn.

DIXON, Jos., Crucible Co., Jersey City, N. J.

OBERMAYER Co., S., (The), 641 Evans St., Cincinnati, O.

WISCONSIN Graphite Co., Allegheny, Pa.

CUPS (Ball)

CROSBY Co. (The), Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

NATIONAL Cycle Mfg. Co., Bay City, Mich.

WORCESTER Pressed Steel Co., Worcester, Mass.

CUPS AND CONES

CORBIN Screw Corporation (The), New Britain, Conn.

DETROIT Screw Works, Detroit, Mich.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.

HOUGHTON & Buxton, Worcester, Mass.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

MATHEWS, H. A., Mfg. Co., Seymour, Conn.

NEW Britain Hardware Mfg. Co. (The), New Britain, Conn.

PENINSULAR Milled Screw Co., Detroit, Mich.

WESTERN Automatic Machine Screw Co. (The), Elyria, O.

CURTAINS (Storm)

CURTAIN Supply Co., 85-93 Ohio St., Chicago, Ill.

ENEAS, A. G., 50 Congress St., Boston, Mass.

SPRAGUE Umbrella Co. (The), Norwalk, O. (see page 131).

CURTAIN FASTENERS

MURPHY Co., The G. W. J., Merrimac, Mass.

NEIDER Co., F. A. (The), Augusta, Ky. (see page 43).

ROEHM & Davison, Woodbridge and Wayne Sts., Detroit, Mich.

SMITH & Co., Jos. N., Detroit, Mich.

TAYLOR Co., H. D., 103-105 Oak St., Buffalo, N. Y.

WEISS & Son, Chas., 4725 Cottage Grove Ave., Chicago, Ill.

WING Co., Charles, Amesbury, Mass.

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EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

KELLEY, E., & Co., 509 Main St., Worcester, Mass.

LARRIMORE Buggy Top Co., Baltimore, Md.

MECHANICAL Fabric Co., Providence, R. I.

NEWTON, W. H. & Son, 127 Elm St., Cortland, N. Y.

PELINKA, Frank, 409 Blue Island Ave., Chicago, Ill.

PNEUMATIC Mattress & Cushion Co., 5 Fourth St., N. Y. City.

SPRINGFIELD Auto Top & Upholstering Co., 102-106 Dwight St., Springfield, Mass. (see page 145).

WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

CYCLOMETERS (See Indicators—Speed and Distance)

DASHES AND FENDERS

A-Z Co. (The), 462 11th Ave., N. Y. City.

AMERICAN Veneer Co., Kenilworth, N. J.

BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page opposite).

COLE & Woop, New York City.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 43).

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We desig n and make our own dies The stamped parts must necessarily form accurate joints. We thus avoid the uneven cut-and-fit appearance sometimes seen on sheet metal automobile parts. Both of our factories are turning out highest grade of workmanship and meeting the severest requirements of the most representative car builders.

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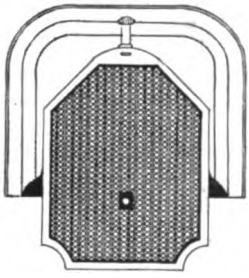

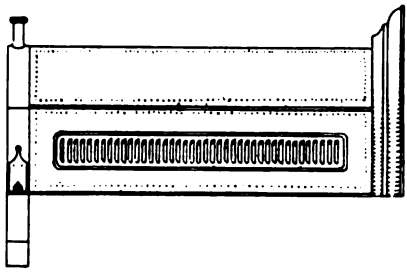

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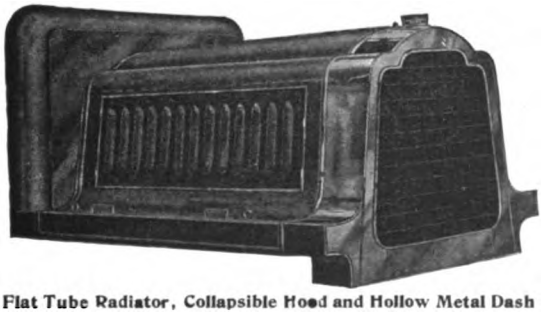

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DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

EVERITT, B. F., Detroit, Mich.

FEDDERS Mfg. Co., Buffalo, N. Y. (see page 113).

GRAY & Sons, Peter, 90 Union St., Boston, Mass.

HALL, E. H., Co. (The), Inc., 12 Elm St., Rochester, N. Y.

HAYES Mfg. Co. (The), Detroit, Mich.

INDIANAPOLIS Dash Co., Indianapolis, Ind.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 101).

KINSEY Mfg. Co., Dayton, O. (see page 61).

LOCKE & Co., 218-220 West 84th St., New York.

LONG Mfg. Co., 1430-34 Michigan Ave., Chicago, Ill.

MAYO Radiator Co. (The), New Haven, Conn. (see page 115).

M'KINNON Dash Co., Buffalo, N. Y.

MOORE & Munger Co., 602 W. 52d St., New York.

NEW York Dash & Fender Co., 516-520 W. 36th St., N. Y. City.

PETERS & Herron Dash Co. (The), Columbus, O.

PURSELL Mfg. Co., P. M., 802 Beecher St., Indianapolis, Ind. (see page 57).

QUINBY & Co., J. M., Newark, N. J.

SPRINGFIELD Metal Body Co., 387 Birnie Ave., Brightwood, Mass. (see page 141).

WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

DROP FORGINGS

AMERICAN and British Co., Bridgeport, Ct.

ANDERSON Forge & Machine Co., Detroit, Mich.

BAKER, Jas. H., Mfg. Co., 503 Park Bldg., Pittsburg, Pa.

BATES Forge Co., 227 W. Merrill St., Indianapolis, Ind.

BELDEN Machine Co., New Haven, Conn.

BETHLEHEM Steel Co., So. Bethlehem, Pa.

BILLINGS & Spencer Co., Hartford, Conn.

BLAKESLEE Forging Co., Plantsville, Conn.

BLISS Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.

BROOKEBANK, Mullin & Co., 409 Commerce St., Philadelphia, Pa.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page opposite).

CAPE Ann Tool Co., Pigeon Cove, Mass.

CHICAGO Drop Forge & Foundry Co., West Pullman, Ill.

CLAPP, E. D., Mfg. Co. (The), Auburn, N. Y.

CORLISS Engine Works, Providence, R. I.

CORTLAND Forging Co., Cortland, N. Y.

CRESCENT Forgings Co., Oakmont, Pa.

DYSON, Jos. & Sons, Hamilton & Kirtland Sts., Cleveland, O.

EASTERN Forge Co., 70 Kilby St., Boston, Mass.

ECCLES, Richard, Auburn, N. Y.

FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.

GENERAL Railway Signal Co., 1738 Elmwood Ave., Buffalo, N. Y. (see page opposite).

GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.

INDIANAPOLIS Drop Forging Co., Madison Ave. and Downey St., Indianapolis, Ind.

KEYSTONE Drop Forge Co., Chester, Pa.

KILBORN & Bishop Co. (The), New Haven Conn.

KINGSTON Truck & Bolt Co., Kingston, N. Y.

MACHINERY Forging Co., Cleveland, O.

MICHIGAN Bolt & Nut Wks., Detroit, Mich.

MOORE Drop Forging Co., Springfield, Mass.

PAIGE-Storms Drop Forge Co., Chicopee Falls, Mass.

REVERE Drop Forge Co., Revere, Mass.

RICHMOND Forging Corporation, Richmond, Va.

RYMAN Co., K. L., 164 Market St., Newark, N. J.

SCRANTON Forging Co., Scranton, Pa.

SEWARD & Son Co., M., New Haven, Conn.

SMITH Co., A. O., Milwaukee, Wis.

SMITH, H. D., & Co., Plantsville, Conn.

SPRINGFIELD Drop Forging Co., Springfield, Mass.

STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.

TRASNUE & Williams Co. (The), Alliance, Ohio.

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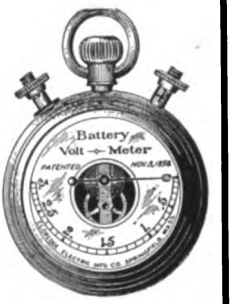

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WORCESTER Pressed Steel Co., Worcester, Mass. (cold).

WYMAN & Gordon 30 Bradley St., Worcester, Mass.

DUST RINGS

BOOTH, N. E., 261 39th St., Brooklyn, N. Y. (see page 149).

DUST SHIELDS

BROWN, W. H., Lennox Bldg., Cleveland, O.

GODDARD & Allen, Rockford, Ill.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WILEY & Son Co., Wm. H., Box 30, Hartford Conn. (see page 93).

DYNAMOS (See Generators)

EJECTORS

LOCKE Regulator Co., Salem, Mass.

PENBERTHY Ejector Co., Detroit, Mich.

RUE Mfg. Co., 215 Race St., Philadelphia, Pa.

SHERWOOD Mfg. Co., Buffalo, N. Y.

ELECTROLYTE

KALBFLEISCH, Franklin H. Co., Broadway and 16th St., N. Y. City.

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BREWER, Elias, 42 Sudbury St., Boston, Mass.

EATON & Prince, 76 Mich. St., Chicago, Ill.

HOYT Elevator Co., 129 Pearl St., Boston, Mass.

NEW Amer. Elevator Co., The, Curtis and Jefferson Ave., Columbus, O.

OTIS Elevator Co., Railway Exchange, Chicago, Ill.

EMERGENCY CASES (Medical)

ABBEY & Co., P. L., Kalamazoo, Mich.

U. S. EMERGENCY Case Co., Utica, N. Y. (see page 91).

ENAMEL

ACME White Lead & Color Wks., Detroit, Mich.

AMERICAN Enamel Co., Providence, R. I.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (see page 43).

BERRY Bros., Ltd., Detroit Mich. (see front cover).

BUFFALO Enamel & Stain Co., 70-72 W. Genesee St., Buffalo, N. Y.

COLOPHITE Co. (The), New Haven, Conn.

DETROIT White Lead Wks., 532 E. Milwaukee Ave., Detroit, Mich.

DITZLER Color Co., 14 Baltimore Ave. W., Detroit, Mich.

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STANDARD Varnish Co., 29 B'way, N. Y. City.

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DIETER Steam Engine Co., 106 Liberty St., New York.

ESTY, Wm., 59 Mill St., Laconia, N. H.

HILBURN, Edwin, Spring Valley, Minn.

LAKEPORT Mfg. Co., Lakeport, N. H.

MASON Regulator Co., 158 Summer St., Boston, Mass.

MILNE, Frank, Crescent St., Everett, Mass.

NADIG, C. H., & Bro., Mfg. Co., 16-24 No. 4th St., Allentown, Pa.

RACINE Engine & Iron Wks. Racine, Wis.

RANDALL, G. N., 1094 French St., Meadville, Pa.

ROCHESTER Machine Tool Wks., Ltd., Rochester, N. Y.

SANTA Ana Machine & Foundry Co., Santa Ana, Cal.

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ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

CHICAGO Eye Shield Co., 112 Randolph St., Chicago, Ill.

EHRLICH & Son, J., 1345 Broadway, N. Y. City.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GLOBE Optical Co., Boston, Mass.

LLOYD, A. J., & Co., 323 Washington St., Boston, Mass.

MEYROWITZ, E. B., 104 E. 23d St., N. Y. City.

MILLER, Chas. E. (Importer), 97 Reade St., N. Y. City.

MILLS Mfg. Co., 1368-1370 Broadway, N. Y. City.

MUNSELL & Co., Eugene, 218 Water St., N. Y. City.

NORTH Carolina Mica Co., 95 Blackstone St., Boston, Mass.

OELSCHLAGER Bros., 42 E. 23d St., N. Y. City.

OPTHALMUSCOPE Co., Toledo, O.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

SCHEIDIG & Co., John, 50 Maiden Lane, N. Y. City.

SPENCER Optical Mfg. Co., 15 Maiden Lane, N. Y. City.

SUSSFIELD, Lorsch & Co., 37 Maiden Lane, N. Y. City.

TEXAS Co. (The), Chicago, Ill.

FELT WASHERS.

BOOTH, N. E., 261 39th St., Brooklyn, N. Y. (see page 149).

FIRE EXTINGUISHERS

BADGER Chemical Mfg. Co., Lake and Reed Sts., Milwaukee, Wis.

BADGER Fire Extinguisher Co. (The), 32 Portland St., Boston, Mass.

CHILDS Co., O. J., Utica, N. Y.

HARRIS Safety Co., N. Y. City.

HAVERHILL Fire Appliance Co., Haverhill, Mass.

HOWE, G. S. & A. J., Co., 117 Exchange St., Worcester, Mass.

LANDAU, Henry W., 117 Green St., Newark, N. J. (see page opposite).

LITTLE Giant Mfg. Co., 88 Wall St., N. Y City.

MONARCH Fire Appliance Co. 249 Pearl St., New York City.

NEVERMISS Fire Extinguisher Co., Middletown, N. Y.

PHOENIX Appliance Co., 15 W. 28th St., N. Y. City.

ROCKFORD-Kalamazoo Fire Extinguisher Co., 424 Ashton Bldg., Rockford, Ill.

STEMPEL Fire Apparatus Mfg. Co., 4520 N. 20th St., St. Louis, Mo.

SUFFOLK Chemical Co., 174 Summer St., Boston, Mass. (see page opposite).

FITTINGS (Pipe, Brass)

BARRETT Mfg. Co., James, Boston, Mass.

BELFIELD & Co., H., Philadelphia, Pa.

BELKNAP Mfg. Co., Bridgeport, Conn.

BEST Manufacturing Co., Pittsburg, Pa.

BUCKEYE Iron & Brass Works, Dayton, O.

CENTRAL Brass Works, Cincinnati, Ohio.

CHAMBERS & Ainslee, Newark, N. J.

CRANE Co., Chicago, Ill.

DALTON-INGERSOLL Co., Boston, Mass.

DARLING Pump & Mfg. Co., Williamsport, Pa.

DETROIT Lubricator Co., Detroit, Mich.

DETROIT Sanitary Supply Co., Detroit, Mich.

EASTWOOD Wire Mfg. Co., Belleville, N. J.

EATON, Cole & Burnham Co., New York, N. Y.

FEWLESS-LEEN Brass & Iron Co., Cincinnati, Ohio.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

HAMLIN & Emery Brass Co., Boston, Mass.

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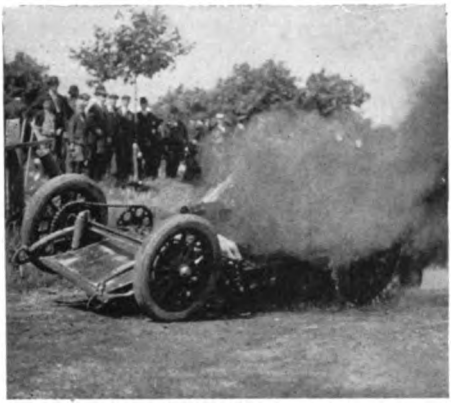
FOR THE LACK OF $1 00 COST IN FIRE PROTECTION

Downey's 90-H.P. Mercedes that was burned at the Readville Races could have been saved with

The Lightning Fire Extinguisher



Downey's 90-H.P. Mercedes burning at the Readville Race Track.

Are YOU Protected Against Fire?

You won't need to worry if you equip your Automobile or Storage Station with the **Lightning Fire Extinguisher**

Sure Death to Gasoline Fire

Composed of a Combination of Dry Chemicals of Absolute Permanency.

Cheapest Insurance in the World

Fire is liable to happen at the most unexpected times on the road or in the garage. Insure your car with the **Lightning Fire Extinguisher.**

PRICES:

Short tube, 20 inches, for Carrying in Car, ... $1.00
Long tube, 24 inches, for Garages, 1.50

GARAGES It is to your interest and your duty to your customers to provide Fire Protection. As a SPECIAL OFFER for the next 30 DAYS we will sell you the Lightning Fire Extinguisher, f. o. b. Boston, at $8.50 per dozen.

The Suffolk Chemical Co. 174 Summer St., BOSTON, MASS.

FITE FIRE

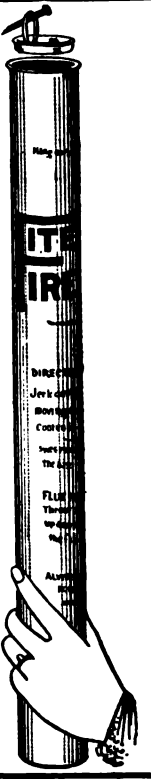
TRADE MARK.

$1.00 EACH

Over 500 Garages Equipped.

DISCOUNT ON QUANTITIES.

22 in. long; 2 in. diameter; weight 3 pounds; equal to 120 gallons of water; generates Nitrogen gas, which is an absolute non-supporter of combustion; guarantee to refill free of charge at any time when used in actual fire emergency. Send for circular and letters of people that have had fires and used "Fite Fire," the only extinguisher that can do what a liquid can't do.



"Fite Fire" equipment on thousands of cars; equip yours and feel safe. Eighty-seven per cent. of Auto Garages have had fires in 1905. "Fite Fire" does not freeze, corrode, explode, deteriorate, or get out of order; last indefinitely. Buy now before it's too late.

Manufacturer

HENRY W. LANDAU

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HAYDENVILLE Co., Haydenville, Mass.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

HOFFMAN & Billings Manufacturing Co., Milwaukee, Wis.

HUMPHREYS Mfg. Co., Mansfield, Ohio.

IDEAL Manufacturing Co., Detroit, Mich.

ILLINOIS Malleable Iron Co., Chicago, Ill.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 81).

JARECKI Manufacturing Co., Erie, Pa.

KINSEY & Mahler Co., Peoria, Ill.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LUNKENHEIMER Co. (The), Cincinnati, O.

McDONALD & Morrison Manufacturing Co., A. Y., Dubuque, Iowa.

McNAB & Harlin Mfg. Co., New York, N. Y.

McRAE & Roberts Co., 227-235 Campbell Ave., Detroit, Mich.

MANSFIELD Manufacturing Co., Pittsburg, Pa.

MASON Regulator Co., Boston, Mass.

MILWAUKEE Brass Mfg. Co., Milwaukee, Wis.

MULLANEY'S Sons, Jas., New York, N. Y.

NEW Britain Brass Co., New Britain, Conn.

PETRIE, John, New Haven, Conn.

PIONEER Brass Works, Indianapolis, Ind.

PITTSBURG Valve & Fittings Co., Pittsburg, Pa.

PLEUGER & Henger Mfg. Co., 11th and Herbert Sts., St. Louis, Mo.

POWELL Co., Wm., Cincinnati, Ohio.

POWHATTAN Brass & Iron Wks., Charlestown, W. Va.

QUEEN CITY Brass & Iron Works, Cincinnati, O.

REGESTER'S Sons Co., J., Baltimore, Md.

ROSE, Clarence H., 1905 Park Row Bldg., N. Y. City.

RUNDLE-Spence Mfg. Co., Milwaukee, Wis.

SPEAKMAN Supply & Pipe Co., Wilmington, Del.

STANDARD Sanitary Mfg. Co., Pittsburg, Pa.

STEBBINS Mfg. Co., E., Springfield, Mass.

THOMAS Brass and Iron Co., Waukegan, Ill.

WALWORTH Manufacturing Co., Boston, Mass.

WESTERN Tube Co., Kewanee, Ill.

FLOATS (Ball)

DIAMOND Stamped Ware Co., Detroit, Mich.

HERCULES Float Co., Springfield, Mass.

NAUGATUCK Mfg. Co., Naugatuck, Conn.

FOOT RESTS

BURROWS Co., E. T., Portland, Me.

RANDS, Wm. C., 51 Macomb St., Detroit, Mich.

WARNER Pole & Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

FOOT WARMERS (See Heaters)

FORGE EQUIPMENT

AMERICAN Blower Co., Detroit, Mich.

AMER. Gas. Furnace Co., 23 John St., N. Y. City.

BILLINGS & Spencer, Hartford, Conn.

BOYNTON & Plummer, Worcester, Mass.

BUFFALO Forge Co., Buffalo, N. Y.

INGERSOLL-Sergeant Drill Co., N. Y. City.

MINER & Peck Mfg. Co., New Haven, Conn.

STURTEVANT Co., B. F., Boston, Mass.

FRAMES (Pressed Steel)

AMERICAN & British Mfg. Co., Bridgeport, Conn.

CLEVELAND Car Specialty Co., Cleveland, Ohio.

CLEVELAND City Forge & Iron Fdry. Co., Cleveland, O.

KINSEY Mfg. Co., Dayton, O. (see page 61).

MIDGLEY Mfg. Co., Columbus, O.

PARRISH & Bingham, Cleveland, O.

SMITH Co., A. O., Milwaukee, Wis.

STANDARD Pressed Steel Co., Philadelphia, Pa.

TURL'S Sons, John, 534 W. 28th St., N. Y. City.

FRICTION CLUTCHES (See Gears)

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FUEL (Non-Explosive, Non-Corrosive)

BARITE Co., 527 Fifth Ave., New York, Night and Day Bank Bldg. (see page opposite.

FUNNELS (Gasoline)

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers (see page 11).

A-Z Co. (The), 462 11th Ave., N. Y. City.

Beckley-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 69).

BREEZE Motor Mfg. Co., 33 Court St., Newark, N. J.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

DOVER Stamping & Mfg. Co., 381 Putnam Ave., Cambridge, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

FROST Mfg. Co., Kenosha, Wis.

GRAY & Sons, Peter, 90 Union St., Boston, Mass.

IVER Johnson Sporting Goods Co., Boston, Mass.

POPE Mfg. Co., Hartford, Conn. (Jobbers) see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

TALIAFERRO, W. T., 258 Broadway, N. Y. City.

WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page 129).

GASKETS

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

GOODWIN & Kintz Co., Winsted, Conn.

HERZ & Co., Cor. Elm and Marion Sts., N. Y. City.

JOHNS-Manville Co., H. W., 100 William St., New York.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 89).

MORSE, R. F., 74 Weybosset St., Providence, R. I.

N. J. Asbestos Co., Camden, N. J.

U. S. Indestructible Gasket Co., 8 So. William St., New York.

U. S. Mineral Wool Co., N. Y. City.

GATES (Driveway)

MANLOVE Gate Co., 272 Huron St., Chicago, Ill.

GAUGES (Gasoline Tanks)

BOSTON Auto Gage Co., 613 Old South Bldg., Boston, Mass. (see page 69).

BLOOD Bros. Auto & Mach. Co., Kalamazoo, Mich.

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

KINSEY Mfg. Co., Dayton, O. (see page 61).

MARTIN, M. A., 518 W. 63d St., Chicago, Ill.

OHIO Brass Co., Mansfield, O.

ROSS Engineering Co., 97 S. Clinton St., Chicago, Ill.

RUTENBER Co., Chicago, Ill.

SIMMONS, John, Co., 104-110 Centre St., N. Y. City.

WEBSTER Mfg. Co., 261 Jefferson Ave., Detroit, Mich. (see page 69).

GAUGES (Pressure)

AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plains, Boston, Mass.

ASHCROFT Mfg. Co., 87 Liberty St., N. Y.

ASHTON Valve Co., 271 Franklin St., Boston, Mass.

AUTO Novelty Co., Milwaukee, Wis.

BOSTON Steam Specialty Co., 168-170 Congress St., Boston, Mass.

CROSBY Steam Gage & Valve Co., 97 Oliver St., Boston, Mass.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFER & Budenburg Mfg. Co., Foxboro, Mass.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

WRAY Pump & Register Co., Rochester, N. Y.

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AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plain, Boston, Mass.

KNOWLSON & M'Conihe, 65 River St., Troy, N. Y.

RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

GEAR BLANKS

DETROIT Screw Works, Detroit, Mich.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

GEAR CASES (Auto)

ALLYNE Brass Fdry. Co., Cleveland, O. and Detroit, Mich. (see page 45).

BRIDGEPORT Deoxidized Bronze & Metal Co., Bridgeport, Conn.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GARFORD Co. (The), Elyria, O.

HOFELLER-Brooks Brass Fdry. Co., 74-78 Fort St. E., Detroit, Mich. (see page 55).

LIGHT Mfg. & Fdry. Co., Pottstown, Pa.

PIONEER Brass Wks., Indianapolis, Ind.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 47).

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

GEARS (Differential)

BOSTON Gear Wks., 152 Purchase St., Boston, Mass.

BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page 39).

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page 85).

GARFORD Co. (The), Elyria, O.

GRANT Gear Wks., 6 Portland St., Boston, Mass.

GRAY-Hawley Mfg. Co., 605-609 Fort St., W., Detroit, Mich.

MUNCIE Auto Parts Co., Muncie, Ind.

VIRTUE & Pound Mfg. Co., Owatonna, Minn.

WARNER Gear Co., Muncie, Ind.

GEARS, REVERSE (Marine)

BRODIE, Wm. H., 45 Vesey St., N. Y. City.

CARLYSLE & Johnson Mach. Co., Hartford, Conn.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

GEARLESS Transmission Co., Rochester, N. Y.

N. Y. Gear Wks., 56 Greenpoint Ave., Brooklyn, N. Y.

TUTTLE Mfg. Co., H. A., So. Norwalk, Conn.

WARNER Gear Co., Muncie, Ind.

GEARS (Transmission)

BELDEN Auto Transmission Co., 1005 Bessemer Bldg., Pittsburg, Pa.

BEVERLY Mfg. Co., Beverly, Mass.

BOSTON Gear Works, 152 Purchase St., Boston, Mass.

BROWN-Lipe Gear Co., 208 S. Geddes St., Syracuse, N. Y. (see page 39).

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CARLYLE & Johnson Machine Co., Hartford, Conn.

CLEMICK-Hirsch Co., 594-596 National Ave., Milwaukee, Wis.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

FORT Wayne Gear Co., Fort Wayne, Ind.

GARFORD Co. (The), Elyria, O.

GEARLESS Transmission Co., Rochester, N. Y.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.

LEE Mfg. Co. (The), South Park, Port Huron, Mich.

MILWAUKEE Auto. Engine & Supply Co., 706 Winnebago St., Milwaukee, Wis.

MILWAUKEE Motor Co., Milwaukee, Wis.

MUNCIE Auto Parts Co., Muncie, Ind.

NEW York Gear Works, 56 Greenpoint Ave., Brooklyn, N. Y.

PHILLIPS Motor Wks., W. L., 405 Tacoma Bldg., Chicago, Ill.

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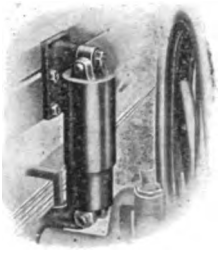
"SHOCK ELIMINATORS"



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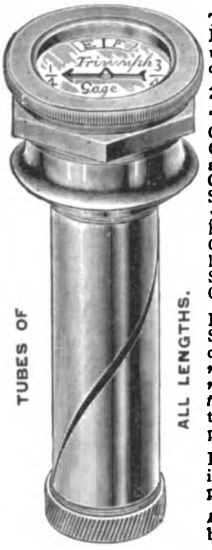

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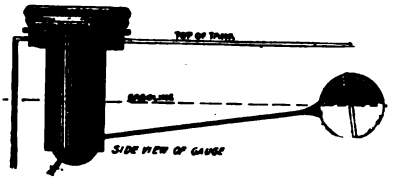

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PURITAN Machine Co., 12 Gratiot Ave., Detroit, Mich.

REDINGTON, F. B., & Co., 107-109 S. Sangamon St., Chicago, Ill.

SHATTUCK Co., W. P., 2125 Girard Ave., So. Minneapolis, Minn.

SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.

SMITH Co., A. O., Milwaukee, Wis.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

STURTEVANT Mill Co., Harrison Sq., Boston, Mass.

SYRACUSE Gear Co., Syracuse, N. Y.

TORBENSEN Motor Car Co., Bloomfield, N. J.

TREBERT Gas Engine Co., 163-165 Main St., W., Rochester, N. Y.

VIRTUE & Pound Mfg. Co., Owatonna, Minn.

WESTERFIELD Motor Co. (The), 1531 Main St., Anderson, Ind.

WESTERN Motor Co. (The), Logansport, Ind.

GEAR WHEELS (Metal)

ADAPT Machinery Co. (The), 17th St. and Wabash Ave., Chicago.

ARTHUR Co. (The), 188 Front St., N. Y. City.

BOSTON Gear Works, 152 Purchase St., Boston, Mass.

BULTMAN, F. H., & Co., 131 Viaduct, Cleveland, O.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page 85).

DETROIT Screw Works, Detroit, Mich.

FELLOWS Gear Shaper Co. (The), Springfield, Vt.

NEW Process Rawhide Co., Syracuse, N. Y.

NUTTALL, R. D., Co., Fayette St. and Garrison Way, Pittsburg, Pa.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

GEAR WHEELS (Rawhide)

CHICAGO Rawhide Mfg. Co., 75-77 Ohio St., Chicago, Ill.

HORSBURGH & Scott Co., Cleveland, O.

MUNSON, Chas., Belt Co., 88 Franklin St., Chicago, Ill.

NEW Process Rawhide Co., Syracuse, N. Y.

SYRACUSE Rawhide Mfg. Co., Niagara and Shonnard Sts., Syracuse, N. Y.

GENERATORS (Electric)

AMERICAN Coil Co., Foxboro, Mass.

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

EDDY Electric Mfg. Co. (The), Windsor, Conn.

ELBRIDGE Electric Co., Elbridge, N. Y.

GENERAL Electric Co., Lynn, Mass.

LAMB Electric Co., 31 Canal St., Grand Rapids, Mich.

MILWAUKEE Electric Co., Milwaukee, Wis.

NEW ENGLAND Motor Co., Lowell, Mass. (see page 27).

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

SPRAGUE Electric Co., 527 W. 34th St., N. Y. City.

STERLING Electric Motor Co., Dayton, O.

WAGNER Electrical Mfg. Co., St. Louis, Mo.

WESTINGHOUSE Co., 10 Bridge St., N. Y. City.

WRIGHT, Thomas, Co. (The), 406-410 Grand St., Jersey City, N. J.

GLASS FRONTS (See Wind Shields)

GLOVES AND GAUNTLETS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BELOIT Glove & Mitten Co., 217 Grand Ave., Beloit, Wis.

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

CLARK Glove Co., Peabody, Mass. (see page opposite).

CROSBY, Frisian, Fur Co., 116 Mill St., Rochester, N. Y.

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With Ventilated and Unventilated Backs
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The perforated back keeps the hands cool, prevents perspiration, and gives elasticity to the gloves Retail at $2.50 per pair up. Without perforated back, silk or wool lined, retail at $3.00 and up. Both styles made of "Reindeere" Leather, long famous in our Engineers' gloves for softness and durability. Black, tan or drab colors These gloves are "live wires" when it comes to sales. Write for prices and samples to-day while you think of it.

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DEMMERLE & Co., 248 W. 23d St., N. Y. City.

DETROIT Leather Specialty Co., Detroit, Mich. (see page 71).

EISENDRATH Glove Co., Armitage and Elston Ave., Chicago, Ill.

ELLSWORTH & Thayer Mfg. Co., Milwaukee, Wis.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

HANSEN, O. C., Mfg. Co., 356 E. Water St., Milwaukee, Wis. (see page 71).

HEAGLE, James, Cor. First Ave, and Market St., Johnstown, N. Y.

KIBBE, C. S., Batavia N. Y.

LILLEY, M. C., & Co., Columbus, O.

MESINGER, H. & F. Mfg. Co., 1801-1803 First Ave., N. Y. City.

MORAWETZ Co. (The), Milwaukee, Wis.

MORRISON, McIntosh & Co., 63 Broad St., Grinnell, Ia. (see page 71).

PONTIAC Knitting Co., Pontiac, Mich.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

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GONGS (See Bells)

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WISCONSIN Graphite Co., Allegheny, Pa.

GREASE

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AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 9).

BESLEY & Co., C. H., Chicago, Ill.

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

COLUMBIA Lubricants Co. of New York, 78 Broad St., New York (see page 103).

DOWNING Grease Co., 14 Waltham St., Boston, Mass.

EAGLE Oil and Supply Co., 104 Broad St., Boston, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FISKE Bros. Refining Co., 13-15 Old Slip, New York (see page opposite).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and obbers) (see page 37).

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

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PHILA. Grease Mfg. Co., The Bourse, Philadelphia, Pa.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

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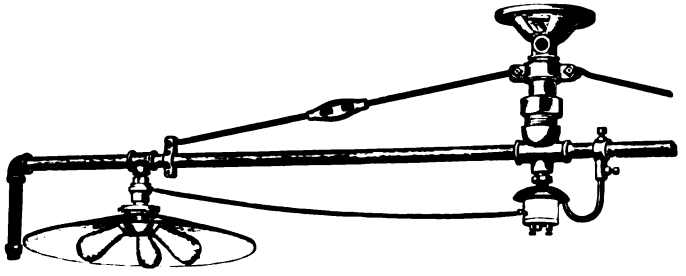

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ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co. (The), 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BAILIE Basket Co., 85 Hudson St., Boston, Mass.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

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BURLINGTON Basket Co., Burlington, Ia.

CURADO Willow Ware Co., 1524 Frankford Ave., Philadelphia, Pa.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

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FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) see page 37).

HEYWOOD Bros. & Wakefield Co., 174 Portland St., Boston, Mass.

KEYSTONE Willow Mfg. Co., 700 Green St., Philadelphia, Pa.

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POST & Lester Co. (The), Hartford, Conn. (Dealers & Jobbers) (see page 49).

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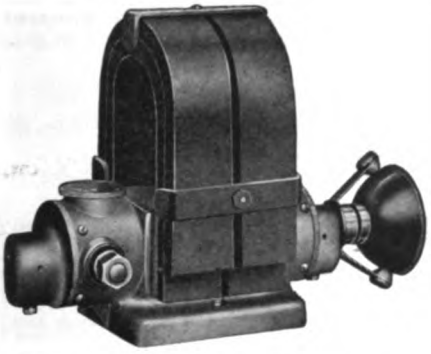

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DOVER Stamping & Mfg. Co., 385 Putnam Ave., Cambridge, Mass.

FEDDERS, Mfg. Co., Buffalo, N. Y. (see page 113).

HAYES Mfg. Co. (The), Detroit, Mich.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 101).

KINSEY Mfg. Co., Dayton, O. (see page 61).

LONG Mfg. Co., 1430-34 Michigan Ave., Chicago, Ill.

LONG-Turney Mfg. Co., Rome, N. Y.

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MOORE & Munger Co., 602 W. 52d St., New York.

PURSELL Mfg. Co., P. M., 802 Beecher St., Indianapolis, Ind. (see page 57).

SPRINGFIELD Metal Body Co., 397 Birnie Ave., Brightwood, Mass. (see page 141).

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WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

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BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

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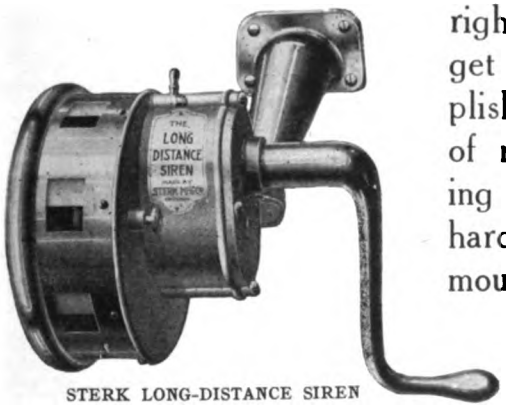

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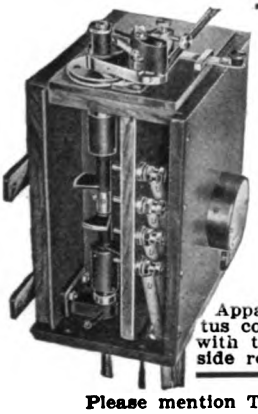

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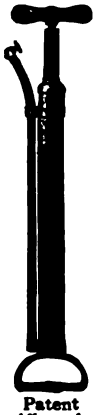

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IMPERIAL AUXILIARY OIL PUMPS.

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Hold it away from you and see. It's the scale of the **Warner Auto-Meter** actual size. It says your Automobile is traveling 8 miles an hour. It is just as steady on your car as it is in your hand—for the scale of

Accurate at all speeds

The Auto-Meter

Goes on the Dash Board

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is not influenced by the jar of the car—speed alone moves it. It doesn't bob around, the way other indicators do, until you are not certain whether it says 5 miles or 15.

Let us tell you more about this wonderful instrument—how it's made with sapphire jewels like a watch, yet is so strongly built that it takes an axe or a bad collision to break it or render it inaccurate, and how we use *magnetism* (in the only practical way), which makes **The Auto-Meter** as reliable as a mariner's compass forever. When you write we'll send you also a trouble-saving 50 cent book, **Auto Pointers**—invaluable to a man who drives his own car.

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AMERICAN Steel Hoop Co., Pittsburg, Pa.

CAMBRIA Steel Co., Philadelphia, Pa.

CARNEGIE Steel Co., Pittsburg, Pa.

PENNSYLVANIA Steel Co., Steelton, Pa.

REPUBLIC Iron & Steel Co., Chicago, Ill.

IRON AND STEEL (Bar)

AM. Iron & Steel Mfg. Co., Lebanon, Pa.

AMERICAN Steel Hoop Co., Pittsburg, Pa.

BRAEBURN Steel Co., Braeburn, Pa.

CAMBRIA Steel Co., Philadelphia, Pa.

CARNEGIE Steel Co., Pittsburg, Pa.

CRUCIBLE Steel Co. of Am., Pittsburg, Pa.

DIAMOND State Steel Co., Wilmington, Del.

LOCKHART Iron & Steel Co., McKee's Rocks, Pa.

LOGAN Iron & Steel Co., Burnham, Pa.

NATIONAL Steel Co., Pittsburg, Pa.

PASSAIC Steel Co., Paterson, N. J.

PENNSYLVANIA Steel Co., Steelton, Pa.

PHOENIX Iron Co., Phoenixville, Pa.

PITTSBURG Steel Shafting Co., Braddock, Pa.

REPUBLIC Iron & Steel Co., Chicago, Ill.

IRON AND STEEL (Sheet)

AMERICAN Sheet Iron Co., Phillipsburg, N. J.

AMERICAN Sheet Steel Co., New York, N. Y.

BASSETT-Pressley Co., Cleveland, O.

CANONSBURG Iron & Steel Co., Pittsburg, Pa.

McCULLOUGH Iron Co., Wilmington, Del.

MARYLAND Sheet & Steel Co., Cumberland, Md.

TAYLOR Co., N. & G., 308 Chestnut St., Philadelphia, Pa.

WAITE, Ranlet & Co., 80-82 Broad St., Boston, Mass.

WAUKESHA Sheet Steel Co., Waukesha, Wis.

YOUNGSTOWN Iron, Sheet & Tube Co., Youngstown, Ohio.

JACKS

ANDERSON Pole & Shaft Co., Anderson, Ind.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOBED Co. (The), Boston, Mass. (Automatic Lift).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

AUTO. Supply Co., Binghamton, N. Y.

BARTH Mfg. Co., Milwaukee, Wis.

BATAVIA Clamp Co., Batavia, N. Y.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BICYCLE Step Ladder Co. (The), 63 Randolph St., Chicago, Ill.

BUCKEYE Jack Mfg. Co., Louisville, O.

COOK'S Railway Appliance Co., Kalamazoo, Mich.

COVERT Mfg. Co., West Troy, N. Y.

DUFF Mfg. Co., Pittsburg, Pa.

EUREKA Mower Co., Utica, N. Y.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FERODOWILL Mfg. Co., St. Paul, Minn.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GARLICK Auto. Prop. Co., Madison Ave. and Broadway, Paterson, N. J.

GLOBE Jack Co., Philadelphia, Pa.

JERSEY Brake Co., 93 Green St., Newark, N. J.

LOCKHART, W. J., 28 Beach St., Boston, Mass.

MAXWELL, L. R. & Co., Cedar Rapids, Ia.

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OLIVER Mfg. Co., 213 So. Desplaines St., Chicago, Ill.

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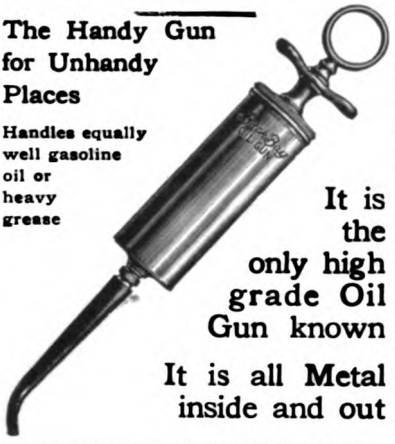

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THE DIFFERENT OIL GUN

The Oil Gun that sells itself wherever shown

Feeds in any position from a drop to a stream 15 feet long

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The only way to inflate tires perfectly is to inflate each one with the same amount of air, thus equally dividing the weight of the car.

80 PER CENT. of All Automobile Tires Are Not Correctly Inflated.

It works on the principle of the pop valve on a boiler. Simply set this valve for the pressure desired, then the pop valve "blows off" when the desired pressure is reached. Every tire will be equally inflated and not rim-cut because of unequal weight on any one tire. Simple, yet unfailingly accurate. Is guaranteed to stay accurate. Simply impossible for you to pump more air into one tire than another while the valve is set at the same mark. Aside from the Perfect Indicator, the **BELL** is the finest compound pump sold to-day. It is made of brass throughout, works smoothly and easily, takes up less room than the ordinary pump. It will save you the cost of more than one tire during the season. Price $6.00 each. Manufactured by

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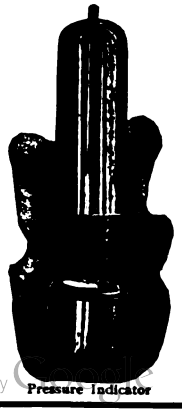
Franco-American Auto Supply Co., Distributers, 1404 Michigan Ave., Chicago, Ill.



Pressure Indicator

PATTERSON, Gottfried & Hunter, Ltd., 146-150 Centre St., N. Y. City.

PEARSALL Mfg. Co., 345-347 W. Fayette St., Syracuse, N. Y.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

ROTH Jack and Tool Co., 68 William St., New York.

SHAW Engineering & Mfg. Co., Newark, N. J.

SHAWVER Co., Springfield, O.

SMITH & Heminway, 296 Broadway, N. Y. City.

TRENTON Malleable Iron Co., Trenton, N. J.

UNIVERSAL Jack & Power Co., Flatiron Bldg., New York, N. Y.

U. S. JACK Co., 1025 W. Lake St., Chicago, Ill.

WHIPPLE, R. W., 169 State St., Binghamton, N. Y.

JOINTS (Flexible)

BAUSCH Machine Tool Co., Wason Ave., Springfield, Mass.

BLOOD Bros. Auto. & Mach. Co., Kalamazoo. Mich.

CALDWELL-Wilcox Co., Newbury, N. Y.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

COATES Clipper Mfg. Co., Worcester, Mass

HARTFORD Auto Parts Co., Hartford, Conn.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

LAIB Co., Louisville, Ky.

LEHMAN, I., 61 Middle St., Cleveland, O.

MORAN Flexible Joint Co., 149 3d St., Louisville, Ky.

MUTUAL Machine Co., 25 Wells St., Hartford, Conn.

SPICER Universal Joint Mfg. Co., Plainfield, N. J.

VANDERBEEK Tool Wks., Hartford, Conn.

LAMP BRACKETS

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DAKIN, B. E., 219 Bond Bldg., Washington, D. C.

DOUGLAS & Lomason Co., Detroit, Mich.

KELLY Handle Bar Co., Cleveland, O.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

MURDOCK, Jr., Co., James, 116 Opera Pl., Cincinnati, O. (see page 93).

SMITH & Co., Jos. N., Fourth and Porter Sts., Detroit, Mich.

STANDARD Welding Co., Cleveland, O.

LAMP BRACKETS (Adjustable)

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

IMPERIAL Brass Mfg. Co., 251 So. Jefferson Ave., Chicago, Ill. (see page 81).

RANDS, Wm. C., 51 Macomb St., Detroit, Mich.

LAMP COVERS

EMPIRE Rubber Co., 115-117 Worth St., N. Y. City.

GILBERT Mfg. Co., 70-80 Center St., New Haven, Conn. (see page 93).

LONDON Auto Supply Co., 1235 Michigan Ave., Chicago, Ill. (see page 117).

O'NEILL-Ollier Co., 1532-34 Michigan Ave., Chicago, Ill.

WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

WILEY & Son Co., Wm. H., Box 30, Hartford, Conn. (see page 93).

LAMPS

ADAMS & Westlake Co. (The), 110 Ontario St., Chicago, Ill.

AMERICAN Lamp Co., 255 Jefferson Ave., Detroit, Mich.

AMERICAN Lamp Wks., 62 West 43d St., N. Y. City.

APFEL-Murdoch & Co., 82 Lake St., Chicago, Ill.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

ATWOOD Mfg. Co., Amesbury, Mass.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill.) (Dealers and Jobbers) (see page 11).

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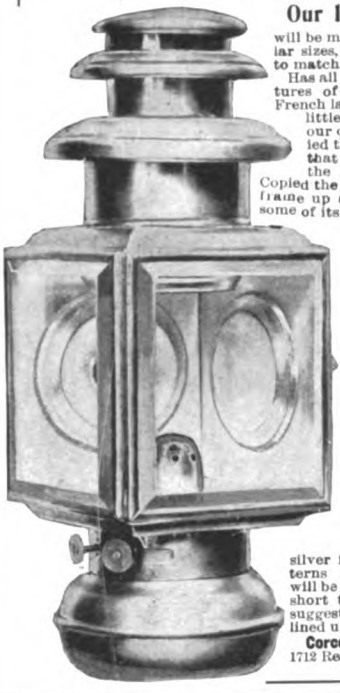

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will be made in two popular sizes, with Tail Lights to match.

Has all the desirable features of the high-priced French lamps, with a few little improvements of our own. Yes, we copied the French lamps that were shown at the New York Show. Copied the style and general frame up and improved on some of its weak points, and now CORCORAN is "IT" on square lamps if anybody should ask you. These French lamps were being priced at as high as $70.00 per pair at the New York Show, and we haven't got the nerve to ask $10.00 per pair. (We have an awfully low price—write.)

Elegant, well made, highly finished, and out of good, heavy-gauge brass. Solid brass outside, silver inside. Our patterns for these lamps will be finished in a very short time and would suggest that you get lined up for samples.

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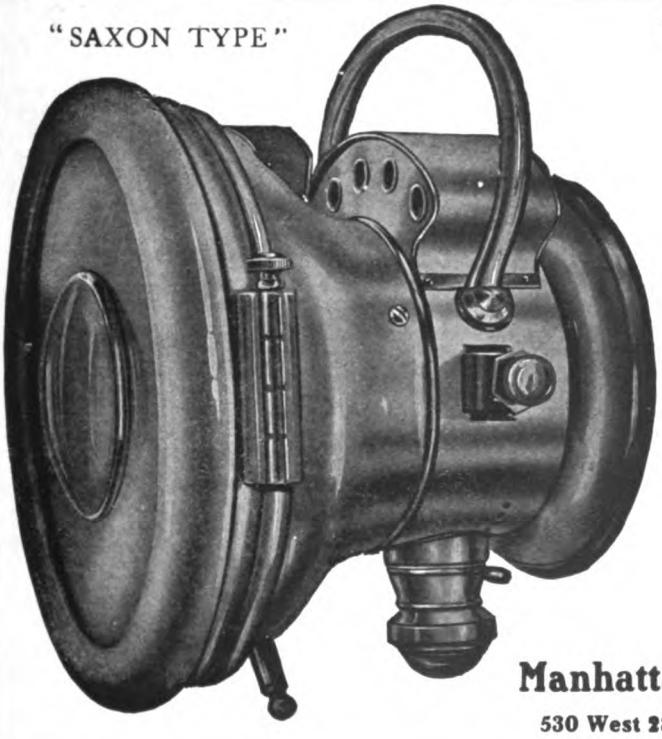

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BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BROWN Mfg. Co., Columbus, O.

CHICAGO Auto Lamp Works, 71 W. Jackson Blvd., Chicago, Ill.

COLT Co., J. B., 21 Barclay St., N. Y. City.

CORCORAN Lamp Co. (The), 1712 Reading Rd., Cincinnati, O. (see page 85).

COWLES, C., & Co., New Haven, Conn.

DAYTON Mfg. Co., 2240 E. 3d St., Dayton, Ohio.

DIETZ, R. E., Co., 33 Laight St., N. Y. City.

DU BOIS Searchlight Co., 220 Broadway, N. Y. City.

EDMUNDS & Jones, 315 Riopelle St., Detroit, Mich.

ENGLISH & Mersick Lamp & Fdry. Co., New Haven, Conn.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

FUNKE, A. H., 83 Chambers St., N. Y. City.

GRAY & Davis, Amesbury, Mass.

GRAY, Peter & Sons, 88-90 Union St., Boston, Mass.

HAM Mfg. Co., C. T., Rochester, N. Y.

HINE-Watt Mfg. Co., 58 Wabash Ave., Chicago, Ill.

LOCKWOOD, C. N., & Co., 57 Mechanic St., Newark, N. J.

MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.

MANHATTAN Lamp Works, 530 W. 28th St., N. Y. City (see page 85).

MANHATTAN Screw & Stamping Wks., 7th Ave. and 11th St., N. Y. City.

MILLER Mfg. Co., Peekskill, N. Y.

NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.

NEWARK Coach Lamp Co., 84-96 Monroe St., Newark, N. J.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

PYLE Mfg. Co., 2211 Park Ave., Indianapolis, Ind.

ROSE Mfg. Co., 910 Arch St., Phila., Pa.

RUSHMORE Dynamo Wks., Plainfield, N. J.

SCOVILLE & Peck Co. (The), New Haven, Conn.

STANDARD Lamp Mfg. Co., 43 So. Canal St., Chicago, Ill., and Charlotte, Mich.

STEVENS & Sackett Co. (The), 129-131 Union St., New Haven, Conn.

TWENTIETH Century Mfg. Co., 19 Warren St., New York, N. Y.

VESTA Accumulator Co., 1334 Michigan Ave., Chicago, Ill.

WHITE Mfg. Co., 155 Cannon St., Bridgeport, Conn.

LAMPS (Water Glass)

DIETZ, R. E., Co., 33 Laight St., N. Y. City.

ELECTRIC Contract Co., 202 Centre St., N. Y. City.

LEATHER

AMERICAN Oak Leather Co., Cincinnati, O.

ASHTABULA Hide & Leather Co., Ashtabula, O.

CARR, F. S., 74 Pearl St., Boston, Mass. (see page 143).

CHASE Co., L. C., Boston, Mass. (see page opposite).

CLEVELAND Tanning Co. (The), Jennings and Dennison Ave., S. W., Cleveland, O.

CRANDAL, Stone & Co., Binghamton, N. Y.

DIAMOND Leather Co., Peabody, Mass.

DUSENBURY & Son, C. Coles, New York, N. Y.

HALSEY & Smith, J. H. Shipman and Springfield Ave., Newark, N. J.

HOWELL & Co., T. P. Newark, N. J.

LACKAWANNA Leather Co. (The), Hackettstown, N. J.

PATENT Leather Co. of America (The), Newark, N. J. (see page 87).

RASER Tanning Co., Ashtabula, O.

REX Imperial Leather Co., 16 Chappel St., Newark, N. J.

ROEHM & Davison, Detroit, Mich.

STANDARD Leather Co., Allegheny, Pa.

WARD & Co., E. S., Newark, N. J.

WOLVERINE Leather Gds. Co., 59 E. Fort St., Detroit, Mich.

LEATHER (Artificial)

BOSTON Artificial Leather Co., 12 E. 18th St., N. Y. City.

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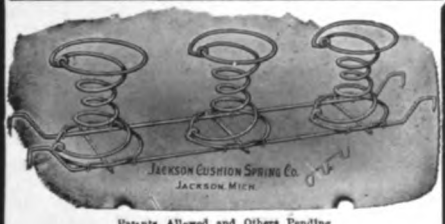
NEWARK, N. J.

Manufacturers of

AUTOMOBILE LEATHERS



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LEVERS (Hand)

GARFORD Co. (The), Elyria, O.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LICENSE NUMBERS (See Name Plates)

LOCKERS

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DARBY & Sons Co., Edward, 233 Arch St., Philadelphia. Pa.

LUBRICANTS (See Oils and Greases)

LUBRICATORS

AMERICAN Injector Co., Detroit, Mich.

AMERICAN Lubricator Co., Detroit, Mich.

BAY State Stamping Co., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y.

CHARTER Mfg. Co., 303 Dearborn St., Chicago, Ill.

DETROIT Lubricator Co., Lincoln Ave. & G. T. R. R., Detroit, Mich.

DODGE Lubricator Co., 8 Waltham St., Boston, Mass.

ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.

FRASSE Co. (The), 38 Cortlandt St., N. Y. City.

GREENE, Tweed & Co., 17 Murray St., N. Y. City.

HANCOCK Inspirator Co. (The), 85 Liberty St., N. Y. City.

HANCOCK Mfg. Co., 140 E. Erie St., Chicago, Ill. (see opposite page).

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

IMPERIAL Brass Mfg. Co. (The), 245-247 So. Jefferson St., Chicago, Ill. (see page 81).

KINSEY Mfg. Co., Dayton, O. (see page 61).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.

LEE Injector Co. (The), Port Huron, Mich.

LUNKENHEIMER Co. (The), Cincinnati, O.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page opposite).

M'RAE & Roberts Co., Detroit, Mich.

MADISON-Kipp Mfg. Co., Madison, Wis.

MANZEL Bros. Co., 48 Broadway, Buffalo, N. Y.

MANZEL, Chas. W., 93 Main St., Buffalo, N. Y.

MICHIGAN Lubricator Co., 661 Beaubien St., Detroit, Mich.

NATHAN Mfg. Co., 86 Liberty St., N. Y. City.

NATIONAL Sewing Mach. Co., Belvidere, Ill.

NOERA Mfg. Co., Waterbury, Conn.

PEDERSEN Mfg. Co., 644 First Ave., New York, N. Y.

PENBERTHY Ejector Co., 220 Abbott St., Detroit, Mich.

SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.

STAR Brass Mfg. Co., 108 E. Dedham, St., Boston, Mass.

STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 154).

WILLIAM Powell Co. (The), 2525 Spring Grove Ave., Cincinnati, O.

WINKLEY Co. (The), Detroit, Mich.

MACHINERY (Special Automobile)

BAKER Bros., Westlake and Post Sts. and M. C. R. R., Toledo, O.

BARNES, W. F. & John, Co., Rockford, Ill.

BEAMAN & Smith Co. (The), Providence, R. I.

BECKER Brainard Milling Machine Co., Hyde Park, Mass.

BLAKE & Johnson, Waterbury, Conn.

BROWN & Sharpe Mfg. Co., Providence, R. I.

BULLARD Mach. Co., Bridgeport, Conn.

CINCINNATI Electric Tool Co., 650-652 Evans St., Cincinnati, O.

CINCINNATI Milling Machine Co., Cincinnati, Ohio.

COLBURN Machine Tool Co., Franklin, Pa.

FELLOWS Gear Shaper Co. (The), Springfield, Vt.

FIELD Co., Chas. H., 230 Chestnut St., Providence, R. I.

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HARTFORD Machine Screw Co., Hartford, Conn.

HEALD Machine Co. (The), Worcester, Mass.

HILL, Clarke & Co., 156 Oliver St., Boston, Mass.

HISEY-Wolf Machine Co., Cincinnati, O.

KEMPSMITH Mfg. Co. (The), Milwaukee, Wis.

LANDIS Tool Co., Waynesboro, Pa.

LAPOINTE Machine Tool Co., Boston, Mass.

NATIONAL-Acme Mfg. Co., Cleveland, O.

NILES-Bement-Pond Co., 111 Broadway, **New York.**

NORTON Grinding Co., Worcester, Mass.

NOVELTY Tufting Machine Co., 264 Michigan Ave., Chicago, Ill.

POTTER & Johnston Machine Co., Pawtucket, R. I.

PRATT & Whitney Co. (The), Hartford, Conn.

PRENTISS Tool & Supply Co., 115 Liberty St., N. Y. City.

REED Co., Francis, 43 Hammond St., Worcester, Mass.

SMITH Co., William J., 424 State St., New Haven, Conn.

SPRINGFIELD Mach. Tool Co., Springfield, Ohio.

STANDARD Tool Co., Cleveland, Ohio.

STEPTOE Shaper Co. (The), Jno., Cincinnati, O.

VON WYCK Machine Tool Co., Cincinnati, Ohio.

WHITNEY Mfg. Co., Hartford, Conn.

WHITON, D. E. Machine Co., New London, Conn.

WILMARTH & Morman Co., Grand Rapids, Mich.

MACHINE WORK (To Order)

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BLAKE & Johnson, Waterbury, Conn.

BULTMAN & Co., F. H., 131 Viaduct, Cleveland, O.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

FERRO Machine & Foundry Co. (The), Cleveland, O.

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page opposite).

HATCHER Auto Parts Co. (The), Viaduct, Cleveland, O. (see page 3).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page opposite).

LEE Mfg. Co. (The), Port Huron, Mich.

LONG Arm System Co., Lakeside Ave. and 38th st., N. E., Cleveland, O.

LOUGH-Scott Co. (The), 26 Cortlandt St., N. Y. City.

MACHINERY Forging Co., Cleveland, O.

MASSNICK Mfg. Co., 1567 River St., Detroit, Mich.

PITTSBURG Brass Mfg. Co., Pittsburg, Pa.

RHODE Island Machine Co. (The), Providence, R. I.

TAFT-Peirce Co., Woonsocket, R. I.

THROOP Perforating Co., 80 Terrace, Buffalo, N. Y.

MACHINES, TUFTING, (Upholstering)

NOVELTY Tufting Machine Co., 264 Michigan Ave., Chicago, Ill.

MAGNETOS (See Igniting Devices)

MAPS (Road)

MENDENHALL, C. S., Race St. and Opera Pl., Cincinnati, O.

OFFICIAL Automobile Blue Book, Flatiron Bldg., N. Y. City (see page 19).

SURVEY Map Co., 41 Lafayette Pl., N. Y. City.

MARKERS (See Name Plates)

MATS (Rubber)

BOSTON Woven Hose Co., Cambridge, **Mass.**

DIAMOND Rubber Co., Akron, **O.**

EMPIRE Rubber Co., Trenton, **N. J.**

GOODRICH, B. F., Co., Akron, O.

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GOSHEN Rubber Works, Goshen, Ind.

HARTFORD Rubber Works Co., Hartford, Conn.

MANHATTAN Rubber Co., 18 Vesey St., N. Y. City.

MONARCH Rubber Co., 41 N. 7th St., Philadelphia, Pa.

NEW JERSEY Car Spring & Rubber Co., Wayne & Brunswick Sts., Jersey City, N. J.

PEERLESS Rubber Mfg. Co., 16 Warren St., N. Y. City.

VICTOR Rubber Co. (The), Springfield, O.

METALS (Babbitt)

ADVANCE Mfg. Co., Todd Bldg., Kalamazoo, Mich.

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 45).

CLUM & Atkinson, Rochester, N. Y.

COLUMBIA Smelting & Refining Co., 307 Water St., N. Y. City.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

MAGNOLIA Metal Co., 113-115 Bank St., N. Y. City.

MUZZY-Lyon Co. (The), Detroit, Mich.

NEW Era Mfg. Co. (The), Kalamazoo, Mich.

PHOSPHOR-Bronze Smelting Co. (The), Ltd., 2200 Washington Ave., Phila., Pa.

REEVES, Paul S., & Son, 1415 Catherine St., Phila., Pa.

SHONBERG, I., 363 Hudson Ave., Brooklyn, N. Y.

SYRACUSE Aluminum & Bronze Co., Syracuse, N. Y. (see page 47).

WILLIAMS & Son, E. A., 107 Plymouth St., Jersey City, N. J.

METALS (Brass and Copper)

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 45).

ANSONIA Brass & Copper Co., Ansonia, Conn.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CHICAGO Brass Co., Kenosha, Wis.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DETROIT Copper & Brass Rolling Mills, Detroit, Mich.

EATON, Cole & Burnham, 253 Broadway, N. Y. City.

ELECTRIC Smelting & Aluminum Co. (The), Lockport, N. Y.

HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

NEW HAVEN Copper Co., New Haven, Conn.

RANDOLPH-Clowes Co., Waterbury, Conn.

METAL (Perforated)

AITCHISON Perforating Co., 303 Dearborn St., Chicago, Ill.

HARRINGTON & King Perforating Co., 236 N. Union St., Chicago, Ill.

MICA (Insulation)

AMERICAN Mica Co., Newton Lower Falls, Mass.

ASHEVILLE Mica Co., Asheville, N. C.

CAROLINA Locust Pin & Mica Co., Franklin, N. C.

CHICAGO Mica Co., Valparaiso, Ind.

MICA Insulator Co., New York and Chicago.

MICA Manufacturing Co., New York, N. Y.

MUNSELL, Eugene, & Co., 218 Water St., N. Y. City.

NORTH Carolina Mica Co., Boston, Mass.

SCHOONMAKER, A. O., 221 Fulton St., N. Y. City.

SILLS-Eddy Mica Co., Newark, N. J.

VANCE, D. T., Plumtree, N. C.

MODEL MAKERS (See Pattern Makers)

MONOGRAMS

ABBOTT, W. H., 1263 Broadway, N. Y. City.

CHILDS & Co., S. D., 200 S. Clark St., Chicago, Ill.

COLGAN Co. (The) J. W., Sudbury Bldg., Boston, Mass.

FIELD, Frank C., 605 N. St. Clair St., Toledo, O.

FINE, Horace E., Trenton, N. J.

MONOGRAM & Crest Engraving Co., 125 E. 86th St., N. Y. City.

SALMAN & Co., John A., 17 Bromfield St., Boston, Mass.

STAFFORD Co., N., 67 Fulton St., N. Y. City.

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BROWNING Mfg. Co., Milwaukee, Wis.

BULLOCK Electric Co., Cincinnati, O.

C. & C. Electric Co., 143 Liberty St., N. Y. City.

CHAPMAN, W. H., Portland, Me.

EDDY Electric Mfg. Co. (The), Windsor, Conn.

ELECTRIC Vehicle Equipment Co., 20th & Montgomery Ave., Philadelphia, Pa.

ELWELL-Parker Electric Co., 1076 Hamilton St., Cleveland, O.

FT. WAYNE Electric Works, Ft. Wayne, Ind.

GENERAL Electric Co., Schenectady, N. Y.

GILMORE Electric Co., 625 First St., Boston, Mass.

HERTNER Electric Co., Cleveland, O.

KENDRICK & Davis, Lebanon, N. H.

LAMB & Co., Kent & Lyons Sts., Grand Rapids, Mich.

LAMB Electric Co., 31 Canal St., Grand Rapids, Mich.

LINCOLN Electric Co., World Bldg., Cleveland, O.

MERRIAM-Abbot Co., 60 E. Prospect St., Cleveland, O.

MILWAUKEE Electric Co., Milwaukee, Wis.

PARSELL & Weed, 129-131 W. 31st St., N. Y. City.

RICHARDSON Engineering Co., Hartford, Conn. (see page 123).

ROTH Bros. & Co., 27-29 S. Clinton St., Chicago, Ill.

SPRAGUE Electric Co., 527 W. 34th St., N. Y. City.

STERLING Electric Motor Co., Dayton, O.

STOREY Motor & Electric Co., 321 Sussex St., Harrison, N. J.

WAGNER Electrical Mfg. Co., St. Louis, Mo.

WESTINGHOUSE Elec. & Mach. Co., Pittsburg, Pa.

MOTORS (Gasoline Auto)

B. L. M. Motor Car Co., 31 Delevan St., Brooklyn, N. Y.

BADECKER Gas Engine Co., Omaha, Neb.

BEAVER Mfg. Co., Barclay & Oregon Sts., Milwaukee, Wis. (see page opposite).

BEILFUSS Motor Co. (The), E. Saginaw St., Lansing, Mich.

BEVERLY Mfg. Co., Beverly, Mass.

BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.

BRENNAN Motor Co., Syracuse, N. Y.

BROWNELL-Trebert Co., 408 St. Paul St., Rochester, N. Y.

BUCHNER CO., Albert, 911 So. Homan Ave., Chicago, Ill.

BUFFALO Engine Co., 12-20 Perry St., Buffalo, N. Y.

BURTT Mfg. Co., 128 No. Edward St., Kalamazoo, Mich.

CARLSON, Charles A., 1060 Bedford Ave., Brooklyn, N. Y.

CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

CROUCH, Chas. P. & Co., 484 Carroll Ave., Chicago, Ill.

CUSHMAN Motor Co. Lincoln, Neb.

DAVIS Mfg. Co., 935 30th St., Milwaukee, Wis.

DOMINICK & Co., Wm., 542-44 Wabash Ave., Chicago, Ill.

DURYEA Power Co., Reading, Pa.

FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.

FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.

FAIRMOUNT Engineering Wks., Philadelphia, Pa.

FOX Reversible Engine Co., Covington, Ky.

GRANT-Ferris Co., Troy, N. Y.

GOSHEN Motor Works, Goshen, Ind.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

HAYDEN Co., N. L., Columbus, O.

HOMAN, J. & E., 380 West Broadway, N. Y. City.

HUBBARD Motor Co., Middletown, Conn.

ILLINOIS Auto & Parts Co., Globe & Main Sts., Peoria, Ill.

KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page opposite).

LAUTH & Co., J., 528 Elston Ave., Chicago, Ill.

M'FARLAND Foundry & Machine Works, Trenton, N. J.

MAXWELL & Fitch Co., 218 So. Washington St., Rome, N. Y.

MERKEL Motor Co., 1095 26th Ave., Milwaukee, Wis.

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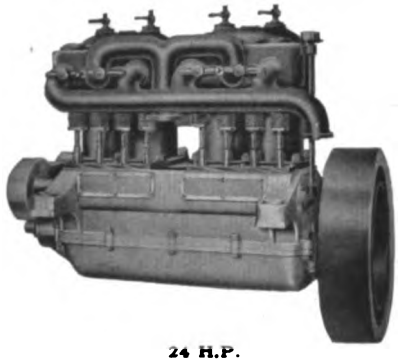
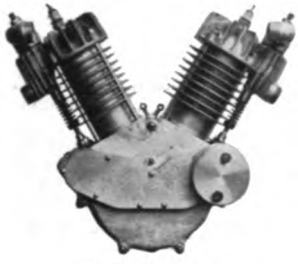


24 H.P.



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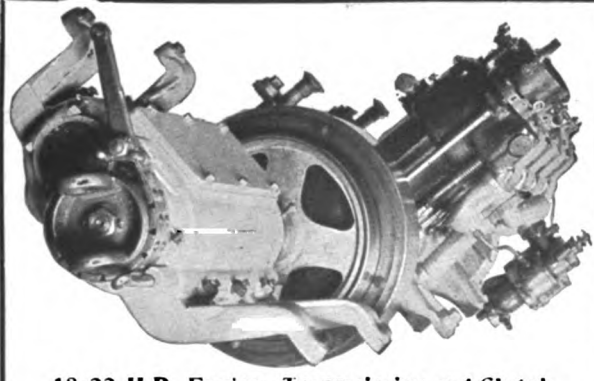

18-22 H.P. Engine, Transmission and Clutch.
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MURRAY, W. B., 1253 Milwaukee Ave., Chicago, Ill.

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NORTH Chicago Mach. Co. (The), North Chicago, Ill.

O. K. Gas Engine Works, Winchester, O.

OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.

PHILLIPS Motor Works, 405 Tacoma Bldg., Chicago, Ill.

PIERCE Engine Co., Racine Junction, Wis.

PITTSBURG Machine Co. (The), New Brighton, Pa.

REEVES Pulley Co., Columbus, Ind.

ROCHESTER Die Shaper Co., Rochester, N. Y.

ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.

SINTZ, Guy L., Fulton & Front Sts., Grand Rapids, Mich.

SMITH & Williams, 149 W. State St., Columbus, O.

SPEED Changing Pulley Co., Indianapolis, Ind. (see page 41).

STERLING Engine Co., 119 Grant St., Buffalo, N. Y.

STREIT Machine Co., A., 1108-10 Harrison Ave., Cincinnati, O.

STROBEN, John, 1416 W. Locust St., Davenport, Ia.

STURTEVANT Mill Co., Harrison Sq., Boston, Mass.

SWAIN Engine Co., 140 West Lake St., Chicago, Ill.

TORBENSEN Motor Car Co., Bloomfield, N. J.

TREBERT Gas Engine Co., 263 West Main St., Rochester, N. Y.

VAN AUKEN-Clevauce Co., Yonkers, N. Y.

WESTERFIELD Motor Co. (The), Anderson, Ind.

WESTERN Motor Co., Logansport, Ind.

WRIGHT Motor Co., 48 S. Division St., Buffalo, N. Y.

MOTORS (Gasoline, Marine)

AYRES Gasoline Eng. & Auto Works, Saginaw, Mich.

BADECKER Gas Engine Co., Omaha, Neb.

BADGER Motor Co., Milwaukee, Wis.

BARBER Bros., 502 E. Water St., Syracuse, N. Y.

BRENNAN Motor Co., Syracuse, N. Y.

BROWN-Talbot Co., Salem, Mass.

BROWNELL-Trebert Co., 408 St. Paul St., Rochester, N. Y.

BUFFALO Gasoline Motor Co., 1286 Niagara St., Buffalo, N. Y.

CAMDEN Anchor-Rockland Machine Co., Rockland, Me.

CARLSON, Chas. A., 1060 Bedford Ave., Brooklyn, N. Y.

CHICAGO Caloric Engine Co., 536 Wabash Ave., Chicago, Ill.

CLEMICK-Hirsch Co., 594 National Ave., Milwaukee, Wis.

CONTINENTAL Motor Mfg. Co., Muskegon, Mich.

CRAIG & Scott, 556 W. 34th St., New York.

CROUCH & Co., Chas. P., 484 Carroll Ave., Chicago, Ill.

CUSHMAN Motor Co., Lincoln, Neb.

DAVIS Mfg. Co., 935 30th St., Milwaukee, Wis.

DE MOOY Bros., 765-767 Willson Ave., Cleveland, O.

DETROIT Auto Marine Co., 82 Congress St., E. Detroit, Mich.

DOMAN Co., H. C., Oshkosh, Wis.

DULUTH Gas Engine Works, Minnesota Ave. & Vine St., Duluth, Minn.

ERICSSON & Moon Mfg. Co. (The), Second St., Detroit, Mich.

ESSEX Engine Co. (The), 416 Union St., Lynn, Mass.

FAIRBANKS-Grant Mfg. Co., Ithaca, N. Y.

FAIRFIELD Motor Co. (The), 172 Cannon St., Bridgeport, Conn.

FAY & Bowen Mfg. Co., Geneva, N. Y.

GRAY Motor Boat Co., 453 Guoin St., Detroit, Mich.

HASBROUCK Motor Works, Inc., 155 Water St., New London, Conn.

HILDRETH Motor & Pump Co. (The), Waterside Ave., Lansing, Mich.

HOLMES Motor Co. (The), West Mystic, Conn.

HUBBARD Motor Co., Middletown, Conn.

KAHLENBERG Bros., Two Rivers, Wis.

KIRKHAM Motor Mfg. Co., Bath, N. Y. (see page 95).

KOWALSKY Engine Co. (The), J., Verona, Pa.

LAMB Boat & Engine Co., Clinton, Ia.

MASSNICK Mfg. Co., 671 E. Atwater St., Detroit, Mich.

MIANUS Motor Works, Mianus, Conn.

MILWAUKEE Motor Co., 615 Clybourn Ave., Milwaukee, Wis.

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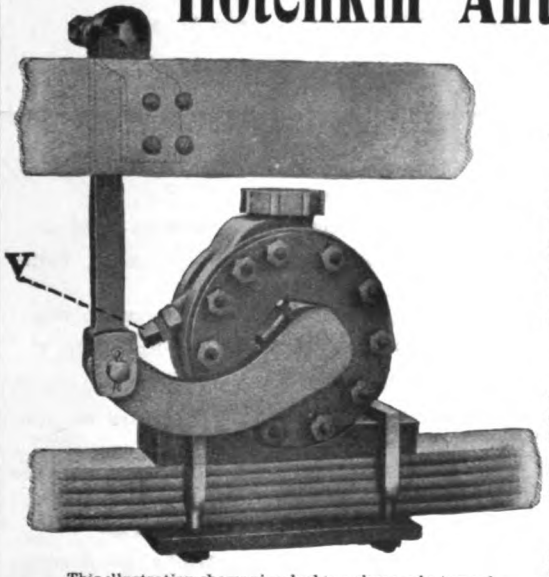

This illustration shows view looking along axle toward wheel from inside of machine

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NORTH Chicago Mach. Co. (The), North Chicago, Ill.

NOYE Mfg. Co., Buffalo, N. Y.

OTTO Gas Engine Works (The), 33d & Walnut Sts., Philadelphia, Pa.

PALMER Bros., Cos Cob, Conn.

PHILLIPS Motor Works, 405 Tacoma Bldg., Chicago, Ill.

PIERCE Engine Co., Racine Junction, Wis.

PIGGINS Bros., Racine, Wis.

RATHBUN-Lacy Co., Toledo, O.

REX Motor Co., 69 Woodward Ave., Detroit, Mich.

ROCHESTER Gas Engine Co., 705 Driving Park Ave., Rochester, N. Y.

SEITZ Co., F. A., 141 Frelinghuysen Ave., Newark, N. J.

SMALLEY Motor Co., Ltd., Bay City, Mich.

SMITH & Williams, 149 W. State St., Columbus, O.

STERLING Engine Co., 119-121 Grant St., Buffalo, N. Y.

STRELINGER Co., Chas. A., 96-110 Bates St., Detroit, Mich.

TEMPLE Pump Co. (The), 15th St. and 15th Pl., Chicago, Ill.

TERMAAT & Monahan Co., Oshkosh, Wis.

TREBERT Gas Engine Co., 263 W. Main St., Rochester, N. Y.

UNITED Mfg. Co., 175 Woodbridge St., Detroit, Mich.

VIRTUE & Pond Mfg. Co., Owatanna, Minn.

WESTERN Auto Supply Co., 285 Virginia St., Milwaukee, Wis.

WESTERN Gas Engine Co., Michigan City, Ind.

WRIGHT Motor Co., 48 S. Division St., Buffalo, N. Y.

MOTORS (Kerosene)

ACME Oil Engine Co., Union Ave., near R. R., Bridgeport, Conn.

BUFFALO Gasoline Motor Co., Niagara St., Buffalo, N. Y.

DIESEL Motor Co., 11 Broadway, N. Y. City.

FRANTZ Mfg. Co., Cherryville, Pa.

INTERNATIONAL Power Vehicle Co., 216 Pacific St., Stamford, Conn.

MIETZ, A., 138 Mott St., N. Y. City.

NEW YORK Kerosene Oil Motor Co. (The), 31 Burling Slip, New York, N. Y.

MOUNTINGS (See Trimmings, Metal)

MUD GUARDS (See Dashes and Fenders)

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A-Z Co. (The), 462 11th Ave., N. Y. City.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 57).

BOWEN Motor Co., 92 Baynes St., Buffalo, N. Y.

BYRNE, Kingston & Co., Kokomo, Ind.

BUCHNER Co., Albert, 911 So. Homan Ave., Chicago, Ill.

CHAMPION Mfg. Co., 9-15 Alling St., Newark, N. J.

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 91).

GRAY-Hawley Mfg. Co., 605-609 Fort St., W., Detroit, Mich.

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

HAYES Mfg. Co., Detroit, Mich.

HAYNEY, Geo. F., Lynn, Mass.

W. J. KELLS Mfg. Co., Jersey City, N. J. (see page 101).

KINSEY Mfg. Co., Dayton, O. (see page 61).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LOOMIS Autocar Co., Westfield, Mass.

MAYO Damper Co., 355 Walnut St., Pottstown, Pa.

MILWAUKEE Motor Co., Milwaukee, Wis.

MOTOR & Mfg. Works Co., Ithaca, N. Y.

POWELL Muffler & Timer Co., Utica, N. Y.

ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.

SMITH & Co., D. B., Utica, N. Y. (see page 129).

TURNER Brass Works, Chicago, Ill.

WEEBER, C. F., Mfg. Works, 255 Sherman St., Albany, N. Y.

WESTERFIELD Motor Co., Anderson, Ind.

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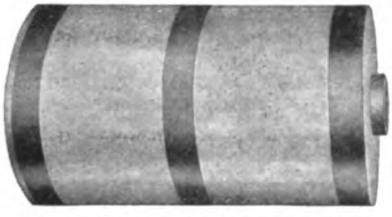

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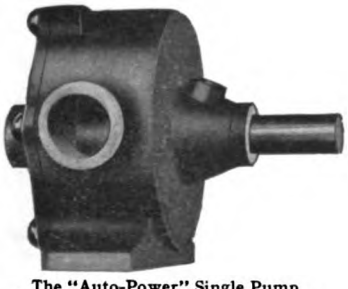

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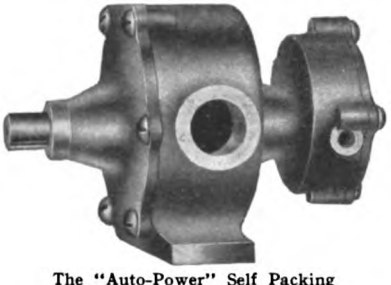

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WAY Muffler Co. (The), 23d and Arch Sts., Philadelphia, Pa.

NAME PLATES

ABBOTT, W. H., 1263 Broadway, N. Y. City.

ALLYNE Brass Fdry. Co., Cleveland, O., and Detroit, Mich. (see page 45).

ALUMINUM Mfg. Co., Two Rivers, Wis.

ATWOOD Mfg. Co., Amesbury, Mass.

BALTIMORE Enamel & Novelty Co., Ft. of Allen St., Baltimore, Md.

BECKER, August, 247 Atlantic Ave., Boston, Mass.

BLACKINGTON & Co., V. H., Attleboro Falls, Mass.

BOYLE & Co., John, 112-114 Duane St., N. Y. City.

CHANDLER Co., (The), 31 Taylor St., Springfield, Mass.

CHILDS, S. D. & Co., 200 So. Clark St., Chicago, Ill.

CROWE Metal Mfg. Co., 71 W. Jackson Blvd., Chicago, Ill.

DETROIT Rubber Stamp Co., 99 Griswold St., Detroit, Mich.

EASTWOOD Wire Mfg. Co., Belleville, N. J.

ENGLISH & Mersick Co., New Haven, Conn.

FINE, Horace E., Trenton, N. J.

GREACEN & Co., Walter, 12 Mechanic St., Newark, N. J.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 81).

MEYERCORD Co. (The), Chamber of Commerce, Chicago, Ill.

MORSE, C. H., & Son., 13 So. Water St., Rochester, N. Y.

MURDOCK-Shaw Co., 125 Federal St., Boston, Mass.

MURDOCK, Jas., Jr., Co., 116 Opera Place, Cincinnati, O. (see page 93).

N. J. Aluminum Co., Newark, N. J.

NEW YORK Stencil Works, New York, N. Y.

QUINT, S. H., & Sons, 15 So. 4th St., Philadelphia, Pa.

REES, F. H., Steele Memorial Bldg., Elmira, N. Y.

ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.

ROGERS, C. E., 34 Beach St., Boston, Mass.

SMITH, R. H., Mfg. Co. (The), Springfield, Mass. (see page 81).

SPENCER'S Sons, I. S., Guilford, Conn.

STAFFORD Co., N., 67 Fulton St., New York.

TORREY Roller Bushing Works, Bath, Me.

TURNER Brass Works (The), Franklin & Michigan Sts., Chicago, Ill.

WADSWORTH Engraving Co., 21 W. Washington St., Springfield, O.

WALTER, N. C., & Sons, 194 William St., N. Y. City.

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CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.

HARTFORD Machine & Screw Co., 476 Capitol Ave., Hartford, Conn.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

JUDD & Leland Mfg. Co., Clifton Springs, N. Y.

PARK City Brass Co., Springfield, Mass.

PARKER, E. N., Springfield, Mass.

SHRIMPTON Mfg. Co., Church St., N. Y. City.

STANDARD Co. (The), Torrington, Conn.

STEVENS & Co., New York, N. Y.

TILEY-Pratt Co. (The), Essex, Conn.

TOLEDO Metal Wheel Co., Toledo, O.

YOUSE, E. S., Reading, Pa.

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AMERICAN Iron & Steel Mfg. Co., Lebanon, Pa.

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EUREKA Nut Lock Co., Pittsburg, Pa.

MICHIGAN Bolt and Nut Co., Detroit, Mich.

NATIONAL Elastic Nut Co., Milwaukee, Wis.

NATIONAL Lock Washer Co., 65-79 Johnson St., Newark, N. J. (see page 149).

POSITIVE Lock Washer Co., Newark, N. J. (see page 149).

SPIRAL Nut Lock Co., New York, N. Y.

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AMERICAN Cement & Oil Co., 44 W. Quincy St., Chicago, Ill.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BESLY & Co., C. H., Chicago, Ill.

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BORNE-Scrymser Co., Claremont, N. J.

CHAMPION Oil Co., 39th St. and Lowe Ave., Chicago, Ill.

CHESTERTON & Co., A. W., 64 India St., Boston, Mass.

CHILDS Co., G. B. (The), 499 Greenwich St., N. Y. City.

CLARK, E. W., & Co., 89 New Chambers St., N. Y. City.

COLE, G. W. Co., 141 Broadway, N. Y. City.

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page opposite).

CURRY Oil & Supply Co., Boston, Mass.

DEARBORN Drug & Chemical Works, Chicago, Ill.

DIXON, Jos., Crucible Co., Wayne & Monmouth Sts., Jersey City, N. J.

ECONOMY Oil & Compound Co., 442 Clark St., Chicago, Ill.

EMERY Mfg. Co., 41 Main St., Bradford, Pa.

Excelsior Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FISKE Bros. Refining Co., 13-15 Old Slip, N. Y. City (see page 73).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GALENA Signal Oil Co., Franklin, Pa.

HARRIS, A. W., Oil Co., 324 S. Water St., Providence, R. I. (see back cover).

HAVEMEYER Oil Co., 78 Broad St., N. Y. City.

HAWS, George A., 73 Pine St., N. Y. City.

HOFFMAN Lubricating Oil Co., Binghamton, N. Y.

HUGHES Anti-Friction Co., 613 Rutherford Ave., Boston, Mass.

KANTER Co., R. J., 647 Water St., N. Y. City.

KELLOGG, E. H., Co., 243-244 South St., N. Y. City.

KELLOM & Co., Chas. F., 128 Arch St., Philadelphia, Pa.

LUBRON Mfg. Co., 89 Broad St., Boston, Mass.

MACLEAN Oil & Supply Co., 463 Atlantic Ave., Boston, Mass.

MAGIE Bros., 9-11 No. Canal St., Chicago, Ill.

MARION Mfg. Co., Franklin, Pa.

MILLER'S Sons, Wm. P., 75-79 Third St., Long Island City, N. Y.

MONARCH Mfg. Co., Toledo, O.

MOUND CITY Oil & Supply Co., 203-205 North Levee, St. Louis, Mo.

NATIONAL Cement & Rubber Mfg. Co. 3053-59 Monroe St., Toledo, O.

N. Y. & N. J. Lubricant Co., 15 Church St., N. Y. City (see page 139).

NYE, Wm. F., New Bedford, Mass.

OIL City Oil & Grease Co., Oil City, Pa.

O-U-T-O Co. (The), 19 Camfield St., Newark, N. J.

PENN Oil & Supply Co., Chicago, Ill.

PENN. Petroleum Co., 117 N. 2d St., Philadelphia, Pa. (see page 105).

PHILADELPHIA Grease Mfg. Co., Philadelphia, Pa.

PIGOT, Sayre & Co., 135 William St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

PULVER & Sons, Peter, N. Y. City.

RELIANCE Oil & Grease Co., 12 S. Water St., Cleveland, O.

RICHARDSON Lubricating Co., Quincy, Ill.

ROBINSON, Son & Co., Wm. C., Baltimore, Md.

ROYAL Lub. Oil Co., 116 Broad St., N. Y. City.

ROYAL Oil Co., 2 Platt St., N. Y. City.

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VISCOSITY Oil Co., 21 River St., Chicago, Ill.

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WINN, F. R., Co., 147 Maiden Lane, N. Y. City.

YOUNG, O. W., Newark, N. J.

OILS (Semi-Solid)

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page 103).

HARRIS Oil Co., A. W., 330 So. Water St., Providence, R. I. (see back cover).

N. Y. and N. J. Lubricant Co., 14 Church St., New York (see page 139).

OIL CUPS

AURORA Automatic Mach. Co., Aurora, Ill.

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y.

DETROIT Lubricator Co., Lincoln Ave. and G. T. R. R., Detroit, Mich.

DURYEA Power Co., Reading, Pa.

ESSEX, G. B., Brass Co., 480 Franklin St., Detroit, Mich.

LUNKENHEIMER Co. (The), Cincinnati, O.

SHERWOOD Mfg. Co., Buffalo, N. Y.

STAR Brass Mfg. Co., 108-14 E. Dedham St., Boston, Mass.

TUCKER, W. W. & C. F., Hartford, Conn.

WINKLEY Co. (The), Detroit, Mich.

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AKRON Mfg. Co., 927 S. Hight St., Akron, O.

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BROWN Oil Can Co., Toledo, O.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GEM Mfg. Co., Pittsburg, Pa.

MANUFACTURERS Can Co., Mulberry and South Sts., Newark, N. J.

MAPLE City Mfg. Co., Monmouth, Ill.

MOSHER, M. E., Rochester, N. Y. (see page 83).

NOERA Mfg. Co., Waterbury, Conn.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

SAFETY Oiler Co., 65 Nassau St., N. Y. City.

SCOVILL Mfg. Co., Waterbury, Conn.

SMITH, S. W., Keithsburg, Ill.

WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page 129).

OIL GUNS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

COLUMBIA Lubricants Co. of New York, 78 Broad St., N. Y. City (see page 103).

ELKHART Brass Mfg. Co., Prospect St., Elkhart, Ind.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GLEASON-Peters Air Pump Co., 20 West Houston St., New York.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

MOSHER, M. E., Rochester, N. Y. (see page 83).

N. Y. and N. J. Lubricant Co., 15 Church St., New York (see page 139).

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

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OIL-HOLE COVERS

BAY State Stamping Co., 380 Chandler St., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y.

BOWN Machine Works, Battle Creek, Mich.

TUCKER W. W. & C. F., 302 Asylum St., Hartford, Conn.

WINKLEY Co. (The), Detroit, Mich.

OIL PUMPS

BOSTON Auto Exch., 173-177 Berkeley St., Boston, Mass.

DETROIT Lubricator Co., Lincoln Ave. and R. R., Detroit, Mich.

ESSEX Brass Co., G. B., 480 Franklin St., Detroit, Mich.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 81).

LAVIGNE Mfg. Co., 132 E. Larned St., Detroit, Mich.

MADISON-Kipp Mfg. Co., Madison, Wis.

MANZEL Bros. Co., 46-48 Broadway, N. Y. City.

M'CORD & Co., Old Colony Bldg., Chicago, Ill. (see page 89).

SHERWOOD Mfg. Co., Buffalo, N. Y.

SIGHT Feed Oil Pump Co., 1148 Holton St., Milwaukee, Wis.

STAR Brass Mfg. Co., 108-114 E. Dedham St., Boston, Mass.

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CHESTERTON & Co., A. W., 64 India St., Boston, Mass.

CHICAGO Rawhide Mfg. Co., 75-77 Ohio St., Chicago, Ill.

EAGLE Oil & Supply Co., 104 No. Broad St., Boston, Mass.

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FELTON, Sibley & Co., 136-140 No. 4th St., Philadelphia, Pa.

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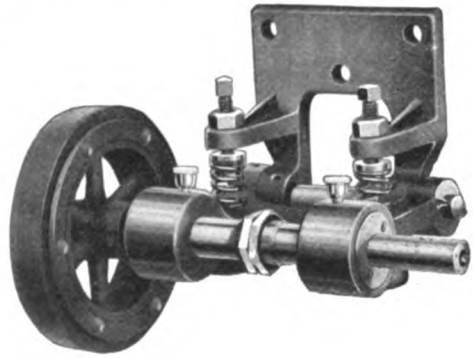

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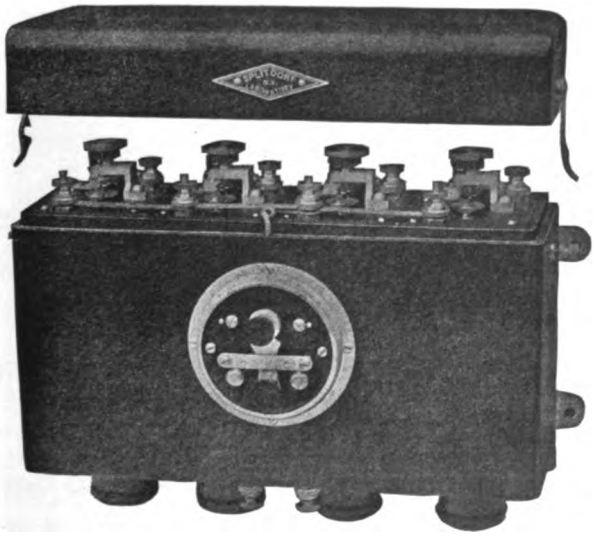

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HOPSON-Chapin Mfg. Co., New London, Conn.

MANUFACTURERS Fdry. Co., Waterbury, Conn.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 89).

MEISEL Press & Mfg. Co., 944-948 Dorchester Ave., Boston, Mass.

MODEL Pattern Works, Washington and Perry Sts., Buffalo, N. Y.

OLMSTEAD, H. B. Co., 663 Manhattan Ave., Brooklyn, N. Y.

PARSELL & Weed, 129-131 W. 31st St., N. Y. City.

STANDARD Pattern Works, Detroit, Mich.

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MARK Mfg. Co., Evanston, Ill.

NATIONAL Tube Co., New York, N. Y.

READING Iron Co., Reading, Pa.

SHELBY Steel Tube Co., Pittsburg, Pa.

SOUTH CHESTER Tube Co., Chester, Pa.

SPANG, Chalfant & Co., Pittsburg, Pa.

UNITED STATES Tube & Iron Co., Pittsburg, Pa.

WESTERN Tube Co., Kewanee, Ill.

YOUNGSTOWN Iron, Steel & Tube Co., Youngstown, O.

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NATIONAL Pipe Bending Co., New Haven, Conn.

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BAKER & Co., 408 N. J. R. R. Ave. Newark, N. J.

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GOLDSMITH Bros., Chicago, Ill.

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PLIERS AND NIPPERS (See Tools)

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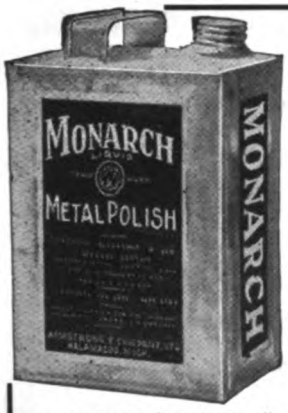

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HOFFMAN, Geo. W., 551 E. Washington St., Indianapolis, Ind.

HOLLINGSHEAD Co., The R. M., Camden, N. J.

KLENZENE Co., 1710-1712 Market St., Philadelphia, Pa.

LEAVITT, Gilbert, 11 India St., Boston, Mass.

LORD Polish Co., F. T., Cambridge, Mass.

LUSTRE Chemical Co., 1303 Michigan Ave., Chicago, Ill.

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NATIONAL Cement & Rubber Mfg. Co., 3055 Monroe St., Toledo, O.

NEWBERN Co., S. C., 430 Walnut St., Philadelphia, Pa.

ORIENT Mfg. Co., 141 Milk St., Boston, Mass. (see page opposite).

PAUL, J. C., & Co., 59 Dearborn St., Chicago, Ill. (see page 109).

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RAIMES & Co., 50 Ferry St., N. Y. City (see page 109).

RATH Mfg. Co., Hancock, Laurel and Second Sts., Philadelphia, Pa.

ROYAL Polish Co., 301-303 W. 63d St., Chicago, Ill. (see page 145).

SPEAR'S Sons Co., Alden, (The), 369 Atlantic Ave., Boston, Mass.

VELOX Chemical Co., Dexter Bldg., Chicago, Ill.

PORCELAIN (Insulators)

AMERICAN Lava Co., Chattanooga, Tenn.

BISHOP Gutta-Percha Co., 425 E. 25th St., New York City.

BRUNT Porcelain Works, G. F., E. Liverpool, O.

IMPERIAL Porcelain Works (The), Trenton, N. J.

MASSACHUSETTS Chemical Co., 170 Summer St., Boston, Mass.

PASS & Seymour, Syracuse, N. Y.

STANDARD China Works, Trenton, N. J.

STAR Porcelain Co., Trenton, N. J.

STATE Line Mfg. Co., Chattanooga, Tenn.

SUN-LIGHT Acetylene Gas Burner Co., 31 Market Sq., Chattanooga, Tenn.

PORTABLE CRANES AND HOISTS

FRANKLIN Portable Crane & Hoist Co., Franklin, Pa.

NICHOLS, Wm. S., 253 Broadway, New York.

NILES-Bement-Pond Co., 111 Broadway, N. Y. City.

PRESSED STEEL PRODUCTS

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

KINSEY Mfg. Co., Dayton, O. (see page 61).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

PARISH & Bingham, Cleveland, O.

SMITH Co., A. O., Milwaukee, Wis.

WORCESTER Pressed Steel Co., Worcester, Mass.

PUMPS (Fuel, Air)

AMERICAN Steam Pump Co., Battle Creek, Mich.

BOSTON Auto Exchange, 177 Berkeley St., Boston, Mass.

BRIDGEPORT Brass Co., Bridgeport, Conn.

CLEVELAND Faucet Co. (The), Cleveland, Ohio.

LEATHER and Brass Mfg. Co., Auburn, N. Y.

REASON Automatic Air Pump Co., Pontiac, Mich.

RUMSEY & Co., Seneca Falls, N. Y.

SHAFFER Machine & Mfg. Co. (The), 211 No. Calvert St., Baltimore, Md.

UNION Steam Pump Co., Battle Creek, Mich.

PUMPS (Boiler)

AMERICAN Steam Pump Co., Battle Creek, Mich.

BLAKE Steam Pump Co., 356 Arborway, Jamaica Plain, Mass.

KILBURN, Edwin, Spring Valley, Minn.

NOERA Mfg. Co., Waterbury, Conn.

OFELDT Motor Works, Nyack-on-the-Hudson, N. Y.

UNION Steam Pump Co., Battle, Creek, Mich.

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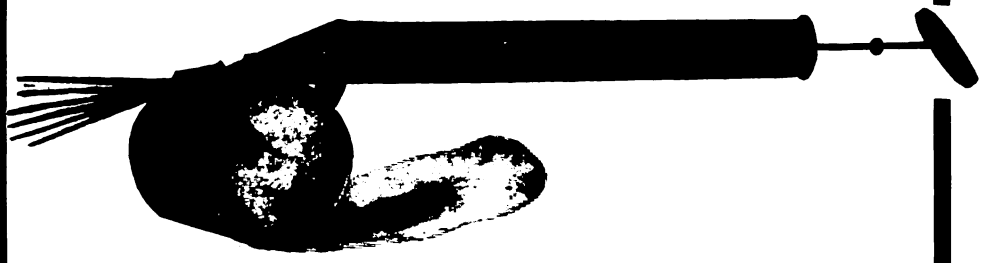

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PUMPS (Circulating)

AMER. Mach. & Mfg. Co., Cleveland, O.

AUTO & Power Appliance Co. (The), Cleveland, O.

BIEDERMAN, C., 1555 Knox St., Cincinnati, Ohio.

BRENNAN Motor Co., Syracuse, N. Y.

BROWN & Sharpe Mfg. Co., Providence, R. I.

BYRNE, Kingston & Co., Kokomo, Ind.

ESSEX Brass Co., G. B., Detroit, Mich.

GARVIN Machine Co., Spring & Varick Sts., N. Y. City.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 81).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

LIPMAN Mfg. Co., Beloit, Wis.

LOBEE Pump & Machinery Co., 133-141 Terrace, Buffalo, N. Y.

McCORD & Co., 1700 Old Colony Bldg., Chicago, Ill. (see page 89).

MILWAUKEE Motor Co., Milwaukee, Wis.

N. Y. Gear Wks., Brooklyn, N. Y.

OBERDORFER Brass Co., M. L., Syracuse, N. Y.

PELTON Gas. Eng. Wks., Lyons, Ia.

ROSS & Kramer, 5607 So. Halsted St., Chicago, Ill.

STEEL Ball Co., 832-840 Austin Ave., Chicago, Ill. (see page 154).

TORBENSEN Motor Car Co., Bloomfield, N. J.

PUMPS, OIL (See Oil Pumps)

PUMPS (Tire Inflators)

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

ARTIZAN Bros. Co., 116 Michigan St., Chicago, Ill.

AUTO Pump Co., Springville, N. Y.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BELL, D. M., Franklin and Michigan Sts., Chicago, Ill. (see page 83).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BRIDGEPORT Brass Co., Bridgeport, Conn.

BROWN-Lipe Gear Co., Syracuse, N. Y. (see page 39).

CLEVELAND Faucet Co., 708 Frankfort Ave., N. W., Cleveland, O.

CODMAN & Shurtleff, 120 Boylston St., Boston, Mass.

COLONIAL Brass Co. (The), 316-318 Seneca St., Cleveland, O.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35)

FERODOWILL Mfg. Co., St. Paul, Minn.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GARAGE Equipment Co., Milwaukee, Wis.

GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.

IMPERIAL Brass Mfg. Co., 251 So. Jefferson St., Chicago, Ill. (see page 81).

JUDD & Leland, Clifton Springs, N. Y.

LEATHER & Brass Mfg. Co., Auburn, N. Y.

MANHATTAN Brass Co., 328 E. 28th St., N. Y. City.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 89).

MILLER Mfg. Co., Peekskill, N. Y.

MOTOR Car Specialty Co., Fidelity Mutual Bldg., Phila., Pa.

NOERA Mfg. Co., Waterbury, Conn.

PACIFIC Tucking & Mfg. Co., 471 18th St., Brooklyn, N. Y.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

PREST-O-LITE Co. (The), Indianapolis, Ind. (see page 13).

ROTARY Triplex Pump Co., 126-128 So. Jefferson St., Chicago, Ill.

SKINNER & Skinner, 5642 Indiana Ave., Chicago, Ill.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

STEVENS & Co., 99 Chambers St., N. Y. City. (Jobbers).

TILEY-Pratt Co. (The), Essex, Conn.

TURNER Brass Works (The), Franklin and Michigan Sts., Chicago, Ill.

WRAY Pump & Register Co., Rochester, N. Y.

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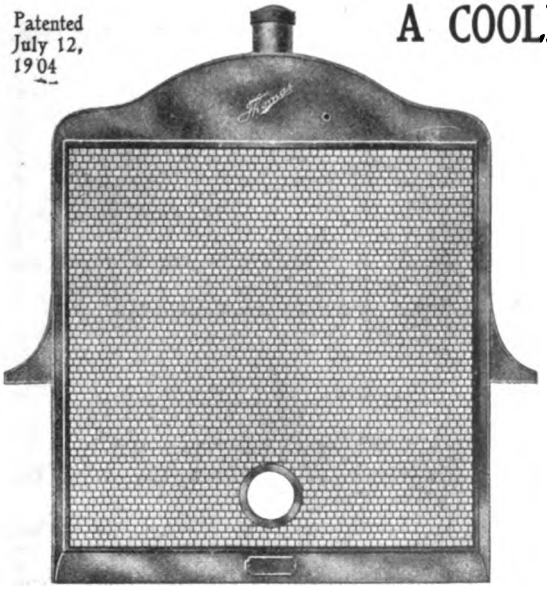

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PUMP CONNECTIONS (Tire Valve)

GOODRICH, B. F., Co., Akron, Ohio.

JUDD & Leland Mfg. Co., Clifton Springs, N. Y.

KELLOGG, G. W., 9 Belmont St., Rochester, N. Y.

PARK City Brass Co., Springfield, Mass.

PARKER, E. N., 293 Main St., Springfield, Mass.

SCHRAEDER Sons, A., N. Y. City.

STEVENS & Co., 99 Chambers St., N. Y City.

YOUSE, E. S., 46 N. 5th St., Reading, Pa.

RADIATORS

BLISS Chester Co., 31 Mathewson St., Providence, R. I.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 57).

DETROIT Auto Specialty Co., Detroit, Mich. (see page 57).

DIAMOND Stamped Ware Co., Detroit, Mich.

FEDDERS Mfg. Co., Buffalo, N. Y. (see page 113).

HAYES Mfg. Co., Detroit, Mich.

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 101).

KINSEY Mfg. Co., Dayton, O. (see page 61).

LONG Mfg. Co., 1430-34 Michigan Ave., Chicago, Ill.

LONG-Turney Mfg. Co., Rome, N. Y.

MAYO Radiator Co., New Haven, Conn. (see page opposite).

MOTOR Components Mfg. Co., 119-121 E. Walnut St., Des Moines, Iowa.

PURSELL Mfg. Co., P. M., 802 Beecher St., Indianapolis, Ind. (see page 57).

STOLP Mfg. Co., Huron & Townsend Sts., Chicago, Ill. (see page 113).

WHITLOCK Coil Pipe Co. (The), Hartford, Conn. (see page 113).

WRIGHT Cooler & Hood Mfg. Co., 335 Wabash Ave., Chicago, Ill.

RIMS (Steel)

AMERICAN Tube & Stamping Co., Bridgeport, Conn.

AUTOMOBILE Wheel & Rim Co. (The), 32 Hennepin Ave., Minneapolis, Minn.

BRYANT Steel Wheel & Rim Co., 454 Hayden Bank Bldg., Columbus, O.

CONTINENTAL Caoutchouc Co. (The), 43 Warren St., N. Y. City (Importers) (see page 5).

CRAMP, James, 85 Summer St., E. Boston, Mass.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

KELLY, Maus & Co., Lake St. Bridge, Chicago, Ill.

MIDGLEY Mfg. Co., Columbus, O.

STANDARD Welding Co. (The), 35 Cone St., Cleveland, O.

WESTON-Mott Co., Flint, Mich.

RIMS (Wood)

HAGERSTOWN Spoke & Bending Co., Hagerstown, Ind.

JONES & Co., Phineas, Newark, N. J. (see page 31).

K. & C. Mfg. Co., Henicker, N. H.

RASTETTER, Louis, & Son, Ft. Wayne, Ind.

TUCKER Woodwork Co. (The), Sidney, O.

ROBES (Auto)

AMER. Buffalo Robe Co., Buffalo, N. Y.

CHASE Co., L. C., Boston, Mass. (see page 87).

CHICAGO Auto Robe Supply Co., 155-159 Market St., Chicago, Ill.

DAVIS Robe Co., Inc., 1307 Champlain Bldg., Chicago, Ill.

DRAPER Bros., Canton, Mass.

GAUSLER & Starr, Philadelphia, Pa.

MORAWETZ Co. (The), Milwaukee, Wis.

PARSONS Buggy Top Co., Chicago, Ill.

PIONEER Woolen Mills, Beaufait St. and Gratiot Ave., Detroit, Mich.

RILEY, Wm. B., & Son, 324-26 Market St., Philadelphia, Pa.

WESTERN Robe Co., Detroit, Mich.

RODS (Brass and Copper)

CHICAGO Brass Co., Kenosha, Wis.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

RANDOLPH-Clowes Co., Waterbury, Conn.

WOODRUFF & Sons Co., Walter W., Mount Carmel, Conn.

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RODS (Distance)

GARFORD Co. (The), Elyria, O.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

RUBBER CLOTH

CARR, F. S., 74 Pearl St., Boston, Mass. (see page 143).

CHASE Co., L. C., Boston, Mass. (see page 87).

EMPIRE Rubber Mfg. Co., Trenton, N. J.

HARTFORD Rubber Works Co., Hartford. Conn.

LANDERS Bros. Co., Toledo, O. (see page 143).

MANUFACTURERS, Selling Co. (The), 1777 Broadway, N. Y. City.

MASS. Chemical Co., 170 Summer St., Boston, Mass.

MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page 143).

WESTERN Rubber Co., Goshen, Ind.

RUNNING GEARS

BORBEIN Auto Co., St. Louis, Mo.

GARFORD Co. (The), Elyria, O.

MUNCIE Wheel and Jobbing Co., Ohio Ave., Muncie, Ind.

NEUSTADT Auto. & Supply Co., 826 S. 18th St., St. Louis, Mo.

SMITH Co., A. O., Milwaukee, Wis.

TOWANDA Motor Vehicle Co., Towanda, Pa.

TORBENSON Gear Inc. 615 Bloomfield Ave., Bloomfield, N. J.

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

SCREWS

ATLAS Bolt & Screw Co., Cleveland, O.

BLAKE & Johnson, 125 E. Main St., Waterbury, Conn.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 43).

DETROIT Screw Works, Detroit, Mich.

HARTFORD Machine Screw Co., 476 Capitol Ave., Hartford, Conn.

KIRK-Latty Co., Cleveland, O.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., N. Y. City.

NATIONAL Screw & Tack Co., Cleveland, O.

NEW Britain Hdw. Mfg. Co. (The), New Britain, Conn.

PENINSULAR Milled Screw Co., Detroit, Mich.

PROGRESSIVE Mfg. Co., Torrington, Conn.

UPSON Bolt & Nut Co., Cleveland, O.

WATERBURY Mfg. Co., Waterbury, Conn.

WESTERN Automatic Machine Screw Co. (The), Elyria, O.

SCREW MACHINE PRODUCTS

BLAKE & Johnson, Waterbury, Conn.

CHICAGO Screw Co., Chicago, Ill.

DETROIT Screw Works, Detroit, Mich.

HARTFORD Mach. Screw Co., Hartford, Conn.

HATCHER Auto Parts Co. (The), Cleveland, O. (see page 3).

ILLINOIS Screw Co., Chicago, Ill.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 89).

MACHINERY Forging Co., Hamilton and Marquette Sts., Cleveland, O.

NATIONAL Cycle Mfg. Co., Bay City, Mich.

NILES-Bement-Pond Co., 111 Broadway, N. Y. City.

PENINSULAR Milled Screw Co., Detroit, Mich.

WORCESTER Mach. Screw Co., Worcester, Mass

SEATS (Auto)

AMERICAN Veneer Co., Kenilworth, N. J.

AVERY Stamping Co., Cleveland, O.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 43).

DANN Bros. Co. (The), 80-88 Franklin St., New Haven, Conn.

DAYTON Folding Tonneau Co., Dayton, O.

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

FELLWOCK Roll & Panel Co. (The), Evansville, Ind.

FRANTZ Body Mfg. Co. (The), Akron, O.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

ITHACA Carriage Co., Ithaca, N. Y.

MICH. Auto. & Carriage Body Co., Detroit, Mich.

RATTAN Mfg. Co., New Haven, Conn.

WHIPPLE, R. W., Binghamton, N. Y.

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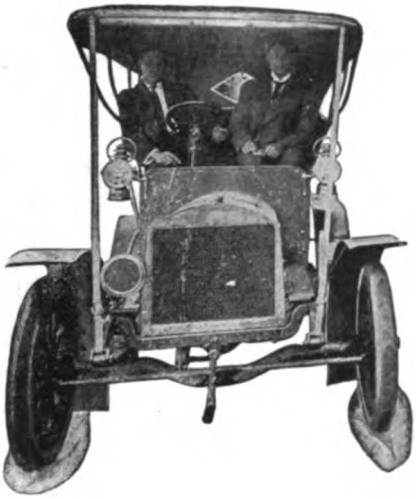

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INDIANAPOLIS Dash Co., Indianapolis, Ind.

SCHUBERT Bros. Gear Co., Oneida, N. Y.

WHIPPLE, R. W., Binghamton, N. Y.

SECTORS

GLOBE Machine & Stamping Co. (The), Hamilton Ave., Cleveland, O. (see page 91).

SHELLS (Boiler, Copper)

HUNGERFORD Brass & Copper Co., New York, N. Y.

RANDOLPH-Clowes Co., Waterbury, Conn

SHELLS (Boiler, Steel)

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

PRESSED Steel Tank Co., Milwaukee, Wis.

STANDARD Welding Co., Cleveland, O.

SHOCK ABSORBERS

AMERICAN Shock Absorber Co., Easton, Pa.

BALDWIN Chain & Mfg. Co., Worcester, Mass.

CHANEY Mfg. Co., A., Terre Haute, Ind.

DIEZEMANN Shock Absorber Co., 1311 Hudson St., Hoboken, N. J.

GABRIEL Horn Mfg. Co., 974 Hamilton St., Cleveland, O.

GODSHALK & Co., E. H., Philadelphia, Pa.

GRAHAM & Goodman, 51-55 W. 93d St., N. Y. City.

HARTFORD Suspension Co., 67 Vestry St., N. Y. City.

HOTCHKIN, P. M., 4018 Lake Ave., Chicago, Ill. (see page 97).

INDIANAPOLIS Bolster Spring Co., Indianapolis, Ind.

KILGORE Auto Air Cushion Co., 46 1-2 Columbus Ave., Boston, Mass. (see page 69).

MOTOR Supplementary Springs Co., Inc., 106 Fulton St., N. Y. City.

OIL Tempering Spring Co., Chicopee Falls, Mass.

SAGER Co., J. H., Rochester, N. Y.

SHEDDAN Mfg. Co., Baltimore, Md.

SUPPLEMENTARY Spiral Spring Co., 4528-4530 Delmar Ave., St. Louis, Mo. (see page 15).

VESTAL Shock Absorber Co., Baum and Whitfield Sts., E. E., Pittsburg, Pa. (see page opposite).

WALKER & Co., E. C., 1913 Logan St., Louisville, Ky.

WEEBER Mfg. Wks., C. F., 255 Sherman St., Albany, N. Y.

WERNER Car Imp. Co., 110 W. 34th St., N. Y. City.

SOAPS (Special for Automobilists)

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealer and Jobber) (see page 43).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11)

BADGER Chemical Mfg. Co., Lake and Reed Sts., Milwaukee, Wis.

BAUM'S Castorine Co., Rome, N. Y.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BROWN, T. C., 402 Mutual Life Bldg., Buffalo, N. Y.

CLEANOLA Co. (The), Allegheny, Pa.

ERICKA Mfg. Co., Inc., Springfield, Mass. (see page 83).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill., (Dealers and Jobbers) (see page 35).

FISK Mfg. Co., Springfield, Mass.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

HASSLER Co., Owen C., 1543 Milwaukee Ave., Chicago, Ill. (see page 109).

HOLLINGSHEAD Co., The R. M., Camden, N. J.

HYDRO-PALM Soap Co., 22 Minott St., Neponsett, Mass. (see page 55).

JERGENS Co. (The), Andrew, Cincinnati, O.

KIRK & Co., Jas. S., Chicago, Ill.

KLENZENE Co., 1710 Market St., Philadelphia, Pa.

MONAHAN Antiseptic Co., 92 Market St., Chicago, Ill.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

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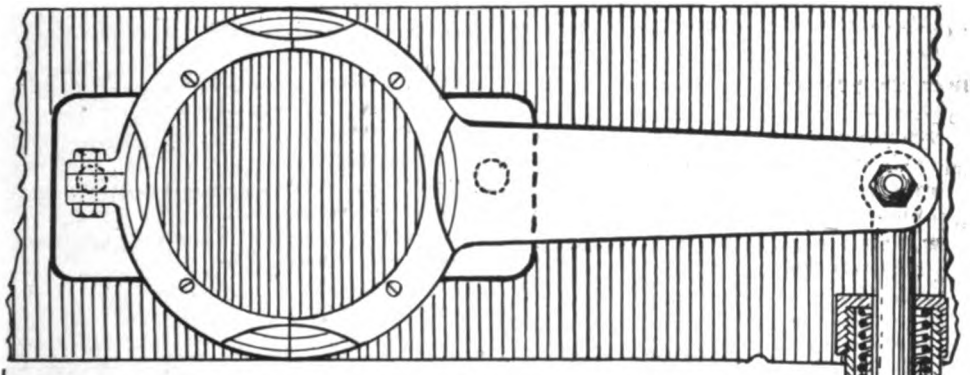

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ROME Soap Mfg. Co., Rome, N. Y.

SKAT Mfg. Co., 791 Park St., Hartford, Conn.

STANLEY, John T., 636 W. 30th St., N. Y. City (see page opposite).

UTILITY Co. (The), 233 Greenwich St., N. Y. City.

WALTKE & Co., Wm., Grand and 2d St., St. Louis, Mo.

SPARK COILS

AMERICAN Coil Co., Foxboro, Mass.

AMERICAN Machine Mfg. Co., East Braintree, Mass.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

ASTORIA Auto Coil Co., 472 14th Ave., Astoria, Long Island, N. Y. (see page 127).

AUTOCOIL Co. (The), 132 7th St., Jersey City, N. J.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BYRNE-Kingston Co., Kokomo, Ind.

CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

DOW Portable Electric Co., Braintree, Mass.

DUPLEX Coil Co., Fond-du-Lac, Wis.

ELBRIDGE Electrical Co., Elbridge, N. Y.

ELECTRIC Contract Co., 202 Centre St., N. Y. City.

ENGLAND, A. E., Amesbury, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GEEN Electric Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.

HARDY Co., R. E., New York, N. Y.

HEINZE Electric Co., Lowell, Mass. (see page 33).

INDUCTION Coil Co., 106 Wisconsin St., Milwaukee, Wis. (see page 33).

KNOBLOCK-Heideman Mfg. Co., South Bend, Ind.

NATIONAL Coil Co., Lansing, Mich. (see page 79).

NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 75).

NEW York Coil Co., 52-54 Park Pl., N. Y. City.

NOXON, C. Per Lee, 500 E. Water St., Syracuse, N. Y.

NUNGESSER Electric Battery Co. (The), 21 King St., Cleveland, O.

PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 97).

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

PROVIDENCE Spark Coil Co., 143 Summer St., Providence, R. I.

ROCHE, Wm., 52 Park Pl., N. Y. City.

RUBAY, Leon, 136 W. 38th St., New York (Importers).

RUPRECHT Electrical Co., 769 Cedar Ave., Cleveland, O.

SCHUG Electric Co. (The), Detroit, Mich.

SEIDLER-Miner Electric Co., Detroit, Mich. (see page 75).

SPLITDORF, C. F., 27 Vandewater St., New York (see page 107).

TRITT Electrical Co., Union City, Ind.

U. S. Coil Co., Jersey City, N. J.

WILLIAMS, E. Q., 533 S. Clinton St., Syracuse, N. Y.

SPARK GAPS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

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Clean Up With

the wonderful new cleanser

MOBO

During a long run, the mud and dirt is bound to dry and harden on the machine. If rubbed off—the surface is scratched beyond redemption. If simply washed off—ugly stains remain which are likewise unremovable outside of the paint shop.

The only way to thoroughly clean the car, and at the same time preserve the lustre of the highly polished surface, is by using Mobo. A pure vegetable oil product which quickly removes grease and dirt of any kind. Prevents blistering and cracking of the paint and varnish. Can be used on harness and leather goods—also woolen fabrics. So harmless that it will not injure the most delicate skin.

Put up in 2 lb. and 8 lb. cans; also in tubs, half barrels, and barrels. If your supply house does not keep it, send us his name and address—we will see that you are supplied.

JOHN T. STANLEY, 636 W. 30th St., New York.

PURITAN OIL SOAP

Washes, cleans, varnished or **painted surfaces. Will clean quickly,** and **positively will not injure** the **finest car** that may be **washed with it.**

PURITAN OIL SOAP is an **absolutely pure** and **neutral vegetable oil soap,** of the **highest quality, a rich** full-bodied **soap.**

Every package **guaranteed.**

TRY IT at our EXPENSE!

If not entirely satisfied, it costs you nothing.

PURITAN METAL POLISH

(Liquid)

Cleans, brightens, polishes all metals. PURITAN METAL POLISH will polish in less than **half the time,** with **less than half the labor** required with any other. **Unlike others,** it is **a perfect emulsion,** and **does not require shaking.**

Positively **will not scratch.**

Will polish any metal just as well **hot** as **cold. All the metal** on a car may be polished with it, **allowed** to **dry,** and will then **wipe off quickly** and **easily.**

MADE ON HONOR · PURITAN · SOLD ON MERIT

We will ship **PURITAN OIL SOAP,** or **PURITAN METAL POLISH,** to any responsible Garage, all charges prepaid, on trial. If not entirely satisfactory, to be returned at our expense.

ALL PURITAN PRODUCTS GUARANTEED TO GIVE PERFECT SATISFACTION.
Samples sent without charge.

PURITAN SOAP COMPANY, 502 Exchange St., Rochester, N. Y.

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FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

SPARK PLUGS

ALBRIGHT Mfg. Co., Inc., Columbus, Ga.

AMERICAN Coil Co., Foxboro, Mass.

AMERICAN Machine Mfg. Co., East Braintree, Mass.

ARC Spark Mfg. Co., 125 W. 32d St., N. Y. City (see page 75).

ARC-Toledo Spark Plug Co. (The), Toledo, O.

ARMAC Motor Co., Cor. Sheldon and Carroll Aves., Chicago, Ill.

ARNSTEIN, Eugene, 35th St and Shields Ave., Chicago, Ill. (Dealer and Jobber) (see page 43).

ATLANTIC Motor Supply & Screw Co., 48 Binford St., Boston, Mass.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

B. & J. Mfg. Co., 3985 Cottage Grove Ave., Chicago, Ill.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BYRNE, Kingston Co., Kokomo, Ind.

CHARTER Mfg. Co., 303 Dearborn St., Chicago, Ill.

CANEDY, Earl, Chicago Heights, Ill.

CLIMAX Igniter Co., Amesbury, Mass.

DAYTON Electrical Mfg. Co. (The), 87 St. Clair St., Dayton, O. (see page 147).

DELTA Mfg. Co., Bloomfield, N. J.

DE LUXE Mfg. Co., Buffalo, N. Y.

DOW Portable Electric Co., Braintree, Mass.

ELBRIDGE Electrical Mfg. Co., Elbridge, N. Y.

ENGLAND, A. E., Amesbury, Mass.

EXCELSIOR Spark Plug Co., Cleveland, O.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FISCHER Special Mfg. Co., 2076 Reading Rd., Cincinnati, O.

FOURFORONE Spark Plug Co., 23 E. Lake St., Chicago, Ill.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

GERSON-Carey Co., Lansing, Mich.

GILBOUGH, B. G., 36 La Salle St., Chicago, Ill.

GEEN Elec. Novelty & Mfg. Co., 183 Lake St., Chicago, Ill.

HARDY Co., R. E., 225 West Broadway, N. Y. City.

HOLCOMBE & Co., 45 Vesey St., N. Y. City.

ILLINOIS Roofing & Supply Co., 23 Lake St., Chicago, Ill.

IGNITER Appliance Co., 133 Central Ave., Cleveland, O. ((see page 79).

INDUCTION Coil Co., Milwaukee, Wis. (see page 33).

KNOBLOCH-Heideman Mfg. Co., South Bend, Ind.

McCORD & Co., 1400 Old Colony Bldg., Chicago, Ill. (see page 89).

MECHANICAL Plug Co., St. Louis, Mo.

MEZGER, C. A., Inc., 203 W. 80th St., N. Y. City (see page 5).

MOSLER, A. R., & Co., 163 W. 29th St., N. Y. City.

NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 75).

OAKES & Dow Co., 15 Chardon St., Boston, Mass.

ORSWELL Ignition Co. (The), 102 Pearl St., Boston, Mass.

PITTSFIELD Spark Coil Co., Pittsfield, Mass. (see page 97).

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

PROVIDENCE Spark Coil Co., Providence, R. I.

PURITAN Machine Co., 12 Gratiot Ave., Detroit, Mich.

RAJAH Auto. Supply Co., 140 Washington St., New York.

REX Motor Co., 69 Woodward Ave., Detroit, Mich.

RICHARDSON Engineering Co., Hartford, Conn. (see page opposite).

ROCHE, Wm., 52 Park Pl., N. Y. City.

RUBAY, Leon, 136 West 38th St., New York (Importer).

SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 75).

SPLITDORF, C. F., 27 Vandewater St., New York (see page 107).

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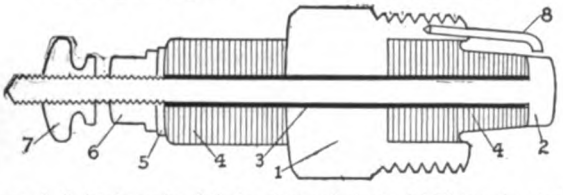
"RICH SPARK" PLUG

MOST PRACTICAL PLUG On the Market

ABSOLUTELY CANNOT BLOW OUT

No Shellac used in any part
Mica Finely Polished and stays so



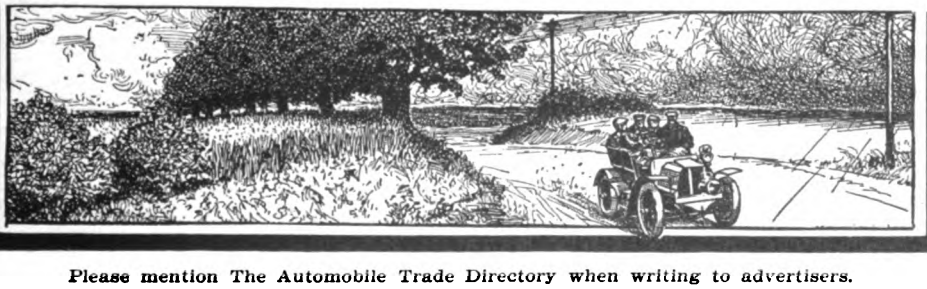
(1) Brass shell (state make of Auto when ordering); (2) Firing pin, steel; (3) Best India sheet mica wrapped around 2 enough turns to give perfect insulation; (4) Best mica disks fit around 3 closely and forced together under great pressure; (5) Copper washer; (6) Brass nut to keep washer in place; (7) Thumb screw for wire or terminal; (8) Spark pin, non-corrosive alloy.

It has double insulation and from its construction it can be seen that pressure from inside the cylinder only tends to make it tighter. Note this plug is partly chambered, and yet the insulation projects out far enough to allow easy cleaning and to get the spark well into the cylinder, thus increasing the power of the engine. No packing is used, therefore none to loosen up or blow out.

PRICE, $1.00, and worth twice the money

Richardson Engineering Co., Hartford, Conn.

Liberal discount to manufacturers and dealers Write us



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THURSTON Mfg. Co. (The), 356 E. 57th St., Chicago, Ill.

TRITT Electric Co., Union City, Ind.

U. S. Coil Co., 60 Harrison Ave., Jersey City, N. J.

SPARKING POINTS

AMERICAN Platinum Wks., Newark, N. J.

BAKER & Co., 408 N. J. R. R. Ave., Newark, N. J.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

CROSELMIRE, Chas. F., Co., 251 N. J. R. R. Ave., Newark, N. J.

SPARK TIMING DEVICES

ALTEMUS & Co., C. L., 15th & Market Sts., Philadelphia, Pa.

ARNSTEIN, Eugene, 35th St and Shields Ave., Chicago, Ill. (Dealer and Jobber) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9.)

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

AUTO Instrument Co., 228 No. 4th St., Phila., Pa.

AUTO & Power Appliance Co. (The), Cleveland, O.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BEMUS, Alton T., 294 Washington St., Boston, Mass.

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BURTT Mfg. Co., Kalamazoo. Mich.

CROUSE-Hinds Co., Syracuse, N. Y.

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

DODGE Lubricator Co., 8 Waltham St., Boston, Mass.

DOMINICK & Co., Wm., 542-544 Wabash Ave., Chicago, Ill.

DOW Portable Electric Co., Braintree, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

FULMER, C. F., Plainfield, N. J.

HAWKINS Mfg. Co., 508 Atlantic Ave., Boston, Mass.

HEINZE Electric Co., Lowell, Mass. (see page 33).

ILLINOIS Auto & Parts Co., Globe and Main Sts., Peoria, Ill.

MILWAUKEE Auto. Eng. & Supply Co., 706 Winnebago St., Milwaukee, Wis.

MONITOR Speed Recorder Co., 274 Pearl St., Cambridge, Mass.

MOSLER & Co., A. R., 163 West 29th St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

POWELL Muffler & Timer Co., Utica, N. Y.

SINTZ, Guy L., Grand Rapids, Mich.

UNCAS Specialty Co., 31 Shipping St., Norwich, Conn.

WESTERN Motor Co., Logansport, Ind.

YOUSE, E. A., Reading, Pa.

SPECIAL PARTS (See Machine Work to Order)

SPEED INDICATORS (See Indicators, Speed and Distance)

SPRINGS (Leaf)

ANSTED Spring & Axle Co., Connersville, Ind.

ARMSTRONG Mfg. Co. (The), J. B., Flint, Mich.

CLEVELAND-Canton Spring Co., Canton, Ohio.

DELANEY, D., & Son, Liberty and Hamilton Sts., Newark, N. J.

DETROIT Steel Products Co., 87-89 Fort St., Detroit, Mich. (see inside back cover).

FOREST City Spring Works, Cleveland, O.

GARDEN City Spring Works, 2000 Purple St., Chicago, Ill.

HESS-Pontiac Spring and Axle Co., Pontiac, Mich.

KALAMAZOO Spring & Axle Co., Kalamazoo, Mich.

KEYSTONE Spring Wks., Inc., 13th and Buttonwood Sts., Philadelphia, Pa.

LEWIS Spring and Axle Co., Jackson, Mich.

MERRILL Spring Co., E. R., 530 West 28th St., New York.

PENN Spring Wks., Baldwinsville, N. Y.

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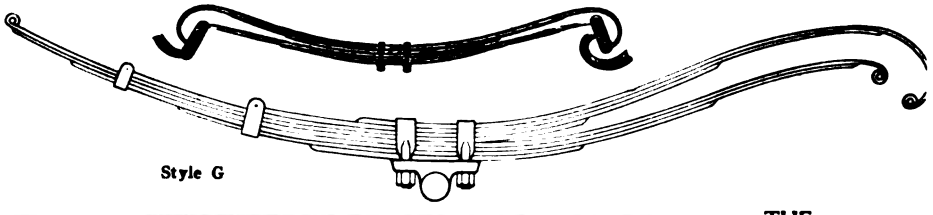
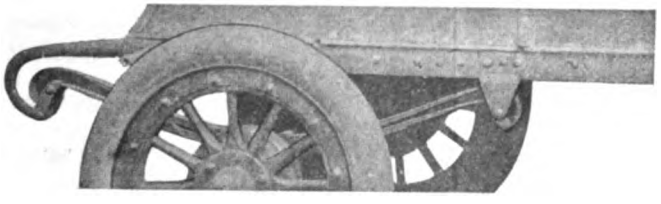
SPRINGS solve the problem:

THE McINTYRE—Type A.



Style G



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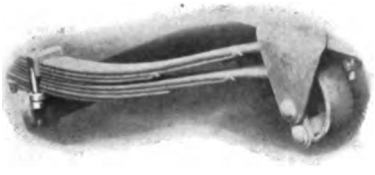
AND
MOST PRACTICAL
SPRING
YET INVENTED



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The Spring adopted by many of the leading Manufacturers because of its exclusive features

Because of its peculiar construction it adjusts itself automatically as the weight, speed and road surface require, and always affords comfortable riding.

IT REDUCES FRICTION TO A MINIMUM

Made of a special composition of steel to withstand the severe requirements of automobile use and at same time giving the resiliency necessary to protect the delicate machinery. Can be adjusted to any automobile. Renders "shock absorbers" unnecessary. IMITATED BUT NEVER EQUALED. We hold the only patent on this type of double spring; anyone using it without our consent is an imitator and infringer and will be prosecuted vigorously.

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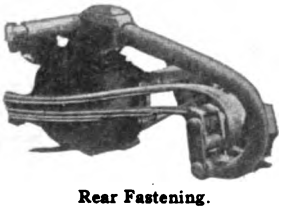

Rear Fastening.

The Perfection Spring Co., Inc.

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We make nine types Can be attached to any hanger

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PERFECTION Spring Co., 251-253 The Viaduct, Cleveland, O. (see page 125).

ROWLANDS, Wm. & Harvey, Frankford, Phila., Pa.

RYMAN Co., K. L., 164 Market St., Newark, N. J.

SHULER, Davis W., & Son, Amsterdam, N. Y.

SPRING Perch Co., 232 John St., Bridgeport, Conn.

TROY Spring Works, 394-96 Congress St., Troy, N. Y.

TUTHILL Spring Co., 215 W. Polk St., Chicago, Ill.

SPRINGS (Cushion and Machinery)

AMERICAN Steel & Wire Co., Chicago, Ill.

BARBER Mfg. Co., Anderson, Ind.

CARY Spring Works, 240 W. 29th St., N. Y. City.

CLEVELAND Wire Spring Co., Cleveland, Ohio.

D'ARCY Spring Co., Kalamazoo, Mich.

DETROIT Wire Spring Co., 295 Congress St., W., Detroit, Mich.

GIBSON Co., Wm. D., Huron and Kingsbury Sts., Chicago, Ill (see page opposite).

HEBB, George A., 70 William St., Newark, N. J.

HUBBARD Spring Co., M. D., Pontiac, Mich. (see page opposite).

INDEPENDENT Steel & Wire Co., House Bldg., Pittsburg, Pa.

JACKSON Cushion Spring Co., Water St., Jackson, Mich. (see page 87).

MILLER & Van Winkle, 18 Bridge St., Brooklyn, N. Y.

MORGAN Spring Co., Worcester, Mass.

NATIONAL Spring & Wire Co., Albion, Mich.

NEW YORK Wire & Spring Co., Hoboken, N. J.

RAYMOND Mfg. Co., Corry, Pa.

SHELDON Spring Co., Wilkes Barre, Pa.

STAPLES & Hanford, Newburg, N. Y.

THOMPSON, F. H., 36-38 Elm St., Portland, Me.

WALLACE Barnes Co. (The), Bristol, Conn. (see page opposite).

WINDSOR Spring Co. (The), Kenosha, Wis.

SPRINGS (Supplementary) (See Shock Absorbers)

SPROCKETS

ADAPT Machinery Co. (The), 17th St. and Wabash Ave., Chicago, Ill.

BALDWIN Chain & Mfg. Co., Worcester, Mass.

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.

BOSTON Gear Wks., 152 Purchase St., Boston, Mass.

COLLMER Bros., 105 Vistula Ave., South Bend, Ind.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

CULLMAN Wheel Co., 1030 Dunning St., Chicago, Ill. (see page 85).

FORG, Peter, Park St., Somerville, Mass.

GARFORD Co. (The), Elyria, O.

GRANT Gear Wks., 6 Portland St., Boston.

NELSON, A., Mfg. Co., 67-69 So. Canal St., Chicago, Ill.

PARISH & Bingham Co., Hamilton St., Cleveland, O.

SPACKE Mach. Co. (The), F. W., Indianapolis, Ind.

SPRINGFIELD Drop Forging Co., 187 Pratt St., Buffalo, N. Y.

STAMPINGS

BAY State Stamping Co., Worcester, Mass.

BOWEN Mfg. Co., Auburn, N. Y.

CROSBY Co. (The), 185 Pratt St., Buffalo, N. Y.

DAVIS & Buxton, Worcester, Mass.

DIAMOND Stamped Ware Co., Detroit, Mich.

EATON, Cole & Burnham, 253 B'way, N. Y. City.

FORSYTH Mfg. Co., 308 Terrace, Buffalo, N. Y.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

HANCOCK Inspirator Co., 85 Liberty St., N. Y. City.

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

MATHEWS, H. A., Mfg. Co., Seymour, Conn.

PARISH & Bingham Co. (The), Hamilton, St., Cleveland, O.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFER & Bundenberg Mfg. Co., Foxboro, Mass.

SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

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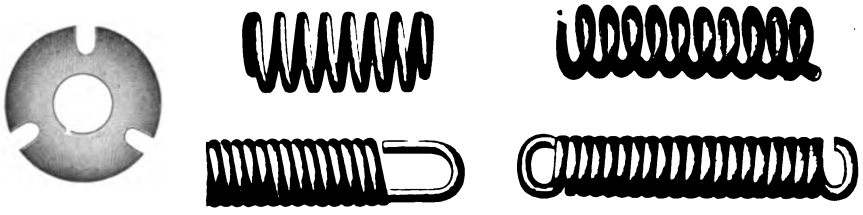

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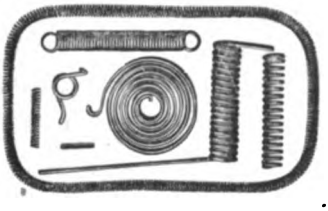
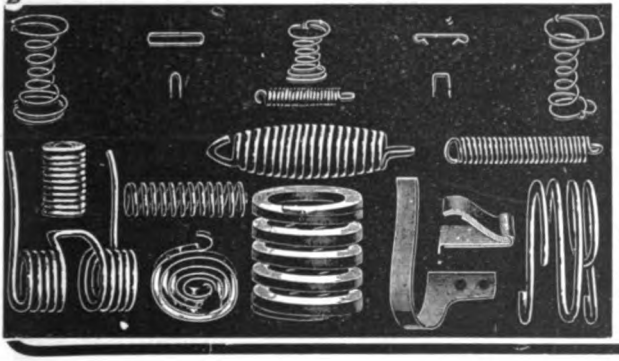
Springs of any
Shape
for any Purpose



Coil Springs
Extensions
Compression
Torsion

M. D. HUBBARD SPRING COMPANY
Pontiac, Michigan



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THE BIGGEST AND HOTTEST SPARK OF ANY COILS ON THE MARKET.

Electrical and mechanical workmanship and finish are the very best. Consumes less battery current.

Save money—Get the BEST. Write for full particulars and prices.

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SMITH Co., A. O., Milwaukee, Wis.

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STAR Brass Mfg. Co., 108 E. Dearborn St., Boston, Mass.

WATSON, H. L., Co., Erie, Pa.

WORCESTER Pressed Steel Co., Worcester. Mass.

STARTERS (Automatic)

BALL, F. H. & F. O., Plainfield, N. J.

STEEL

AMERICAN Sheet Steel Co., 24 State St., N. Y. City.

AMER. Tube & Stamping Co., Bridgeport, Conn.

BASSETT & Presley Co., Cleveland, O.

BOKER & Co., Herman, 101 Duane St., N. Y. City.

BROOKEBANK, Mullin & Co., 409 Commerce St., Phila., Pa.

CARPENTER Steel Co., Reading, Pa.

COLUMBIA Steel Co., Elyria, O.

CRUCIBLE Steel Co. of America, Empire Bldg., Pittsburg, Pa.

ELIOTT-Blair Steel Co., Taylor and Mercer Sts., New Castle, Pa.

FARIST Steel Co. (The), 137 E. Main St., Bridgeport, Conn.

FINISHED Steel Co. (The), 1623 Wilson Ave., Youngstown, O.

JONES & Laughlins Co., Pittsburg, Pa.

LUKENS Steel Co., Coatsville, Pa.

MIDVALE Steel Co., Philadelphia, Pa.

MORRIS & Bailey Steel Co., Ger. Nat'l. Bank Bldg., Pittsburg, Pa.

NASH, Geo., & Co., 224 Pearl St., N. Y. City.

PARDEE, C., Wks. (The), Perth Amboy, N. J.

PROSSER & Sons, Thos., 15 Gold St., N. Y. City.

REPUBLIC Iron & Steel Co., Stock Exchange Bldg., Chicago, Ill.

ROYAL Metal Steel Co., Inc., Battery Park Bldg., N. Y. City (see page 101).

STANDARD Gauge Steel Co., Beaver Falls, Pa.

SUPERIOR Steel Co., Carnegie, Pa.

UNION Drawn Steel Co., Beaver Falls, Pa.

WARD, Edgar T. & Sons, 25 Purchase St., Boston, Mass.

STEEL (Chrome-Nickel)

BETHLEHEM Steel Co., So. Bethlehem, Pa.

CARPENTER Steel Co., Reading Pa.

COLUMBIA Steel Co., Elyria, O.

GAUTIER & Co., D. G., 20 Cliff St., New York.

MIDVALE Steel Co., Philadelphia, Pa.

ORFORD Copper Co., 43 Exchange Place, N. Y. City.

PROSSER & Sons, Thomas, 15 Gold St., New York (Importers).

ROYAL Metal Steel Co., Inc., Battery Park Bldg., N. Y. City (see page 101).

STEEL SHAFTING

CUMBERLAND Steel Co., Cumberland, Md.

PITTSBURG Steel Shafting Co., Braddock, Pa.

UNION Drawn Steel Co., Beaver Falls, Pa.

STEEL STAMPS AND STENCILS

CHANDLER Co. (The), 31 Taylor St., Springfield, Mass.

MURDOCK, Jr., Co., Jas., 116 Opera Pl., Cincinnati, O. (see page 93).

QUINT, S. H., & Sons, 15 S. 4th St., Philadelphia, Pa.

ROBBINS Mfg. Co., John, 58 Kneeland St., Boston, Mass.

SMITH Mfg. Co., R. H. (The), Springfield, Mass. (see page 81).

STEEL WOOL

AMERICAN Steel Wool Co., 451-453 Greenwich St., N. Y. City.

BUEHNE Steel Wool Co. (The), 93 Nassau St., N. Y. City.

STEERING CHECKS

GENERAL Electric Co., Schenectady, N. Y.

MILNE, Frank, Everett, Mass.

SMITH, E. L., 43 Columbus Ave., Boston, Mass.

WAUGH, Chas., & Co., 356-64 Main St., Cambridge, Mass.

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for GASOLINE, underground,	12.50	"
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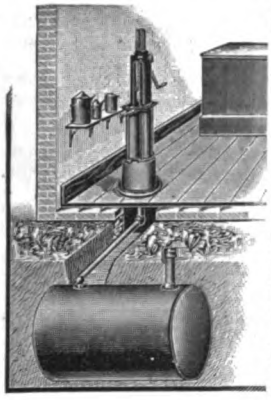
THE NATIONAL GASOLINE TANKS

The National Long Distance Gasoline Storage Outfit which permits of placing the supply tank under ground, the pump being inside the building. In perfecting this outfit we have observed to the letter the rules of the underwriters' Laboratories, and can recommend it to be the safest and most economical way of handling gasoline ever devised.



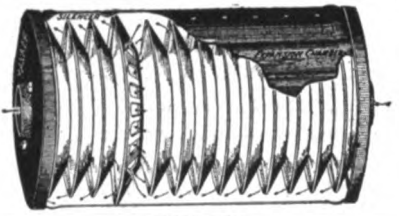
This pump is one of our latest Double Cylinder, which in operating there is no lost motion, every movement of the handle pumps and measures oil, saving time, labor and money.

This outfit is especially designed for Automobile Garages.

Ask for Catalogue

The NATIONAL TANK CO., Inc.
Dayton, Ohio

The Yankee Silent Air Cooled Muffler



PATENTED

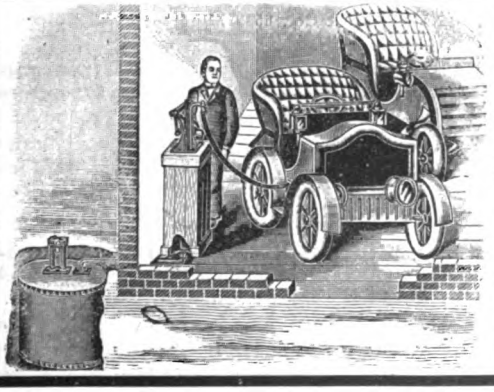
FOR AUTOMOBILES AND BOATS

Now used on nearly every American car.
Built upon entirely new lines.
Muffles all noise completely.
Eliminates every muffler trouble.
Increases power of engine.

The Yankee Muffler is made with a series of steel discs shaped like a saucer, with edges touching, only. One-half of the discs are fluted. Each disc is a muffler in itself. Any number of discs desired are included in the galvanized pipe. As the explosion passes from the discs, every atom of sound is eliminated in the "Silencer," which contains only the light gases and is always cool.

The lightest and strongest muffler made. And the only muffler without back-pressure at all speeds of the engine. So perfect is the "Yankee" that no cut-out valve is necessary. Write for full particulars, and price.

D. B. SMITH & CO., Utica, N. Y., U.S.A.



Western Underground Long Distance Gasolene Storage Outfits

Especially built for use in the garage.

Tank is placed underground any desired distance from the building where pump is situated, is built of extremely heavy galvanized steel, riveted and soldered throughout.

Pump will measure accurately any given quantity from ½ pint to ½ gallon directly into automobile reservoir.

We make many different styles, at prices ranging from $25 to $70 for the 1 bbl. size.

Write for complete catalog—it's free.

Western Oil Pump Co. 2447 Kosciusko St. ST. LOUIS, Mo.

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STEERING KNUCKLES

AMERICAN Ball Bearing Co., Cleveland, Ohio.

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

GEMMER Engine Co., Wabash, Ind.

LEE & Porter, Buchanan, Mich.

MORSE, Williams & Co., West End Trust Bldg., Phila., Pa.

TIMKEN Roller Bearing Axle Co., Canton, Ohio.

VANDERBEEK Tool Wks., Hartford, Conn.

STEERING WHEELS

AMERICAN Veneer Co., Kenilworth, N. J.

AMER. Wood Rim Co., Bradford, Pa.

BYRNE, Kingston & Co., Kokomo, Ind.

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

CENTAUR Motor Co., 59 Franklin St., Buffalo, N. Y.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

GARFORD Co. (The), Elyria, O.

GOERSS, Herman, 162 Russell Ave., Cleveland, O.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

MUNCIE Wheel & Jobbing Co., Muncie, Ind.

RASTETTER & Son, Ft. Wayne, Ind.

WARNER Gear Co., Muncie, Ind.

STEPS

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.

BLAKESLEE Forging Co., Plantsville, Conn.

CUSHING, J. M., Jamestown, N. Y.

DRUEN, B. D., 71 Hamilton St., New Haven, Conn.

QUINCY, Manchester, Sargent Co., 203 Dearborn Ave., Chicago, Ill. (see page 55).

RUBBER Step Mfg. Co., Exeter, N. H.

SMITH, H. D., & Co., Plantsville, Conn.

STRIEBY & Foote Co., 301 Ogden St., Newark, N. J.

WESTERN Automatic Machine Screw Co., (The), Elyria, O.

WING Co., The Chas., Amesbury, Mass.

STORM SHIELDS (See Aprons, Storm)

STRAINERS (Gasoline)

CAMBRIA Forge Co., Cleveland, O., and Johnstown, Pa. (see page 59).

HATCHER Auto Parts Co., 140 Viaduct, Cleveland, O. (see page 3).

KAUFMANN, Chas., 45 So. Main St., Oshkosh, Wis.

LUNKENHEIMER Co. (The), Cincinnati, O.

MOTOR Car Specialty Co., Fidelity Mutual Bldg., Philadelphia, Pa.

SUPPLIES (Dealers and Jobbers)

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (see page 11).

ARNSTEIN, Eugene, 35th St and Shields Ave., Chicago, Ill. (see page 43).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (see page 65).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (see page 35).

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (see page 37).

POPE Mfg. Co., Hartford, Conn. (see page 17).

POST & Lester Co. (The), Hartford, Conn. (see page 49).

SWITCHES (Electric)

AMERICAN Coil Co., Foxboro, Mass.

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTO Lock Co., 6542 Minerva Ave., Chicago, Ill.

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

B. & J. Mfg. Co., Chicago, Ill.

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

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YOU KNOW

that the weakest part of an Auto-Top—the part that has broken first—has been its bows. Knowing that a common tubular carriage bow socket, such as has been generally used, was not strong enough to stand the fearful strain, Col. Sprague has invented an Auto-Bow that is ALL and more than required to be UNBREAKABLE. All bows must be bent in order to let an Auto-Top fold back where it should be, so Col. Sprague uses a strong drop steel forging electrically welded to a large, heavy double (or laminated) steel tube. The bend is made in the solid drop-forged steel. This obviates the bending and fracturing of the steel socket, for when you bend a steel bow socket you crystallize the steel and that is why the common carriage bow is always liable to break on the slightest strain.

In Col. Sprague's **new laminated double steel** bows the wood extends to the **bottom of the bow.** Thus you have **two thicknesses of steel** and regular **solid ash bow combined.** Do you wonder why we do the top business of the world with such a combination?

See our exhibit at all the Auto Shows. Let us show you **A BOW—THE BOW YOU WANT,** the bow you have been **LOOKING FOR,** and **the bow you will get in Col. Sprague's tops. The Sprague idea—made in the Sprague way.**

MADE ONLY BY

THE SPRAGUE UMBRELLA CO.

Norwalk, Ohio, U. S. A.

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BYRNE, Kingston & Co., Kokomo, Ind.

CONN. Telephone & Electric Co., Meriden, Conn. (see page 7).

DAYTON Electrical Mfg. Co., 87 St. Clair St., Dayton, O. (see page 147).

DOW Portable Electric Co., Braintree, Mass.

ELDREDGE Elec. Mfg. Co., Springfield, Mass. (see page 59).

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

GOEBEL, F. A., Marietta, O.

HART & Hegeman Mfg. Co., Hartford, Conn.

McKIBBIN Mfg. Co., South Norwalk, Conn.

MORE-POWER Co., 619 Gorham St., Lowell, Mass.

PARKER, Henry F., 127 N. Fullerton Ave., Montclair, N. J.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

SEIDLER-Miner Electric Co., 205-209 Jefferson Ave., Detroit, Mich. (see page 75).

SPECIALTY Mfg. Co., South Norwalk, Conn.

SPLITDORF, C. F., 27 Vandewater St., New York (see page 107).

WESTERN Electric Co., 259 So. Clinton St., Chicago, Ill.

SWITCHES (Lock)

AUTO-Lock Plug Co., Inc., 31 Nassau St., N. Y. City.

GOEBEL, F. A., Marietta, O.

LOCK Switch Mfg. Co., 20 Broad St., N. Y. City.

TACHOMETERS (See Indicators, Speed and Distance)

TANKS

AVERY Stamping Co., Cleveland, O.

BADGER & Sons Co., E. B., 63-69 Pitts St., Boston, Mass.

BOWSER & Co., S. F., Ft. Wayne, Ind. (see page opposite).

BOYD, James, 73 39th St., Brooklyn, N. Y.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 57).

DETROIT Auto Specialty Co., Detroit, Mich. (see page 57).

DIAMOND Stamped Ware Co., Detroit, Mich.

FEDDERS Mfg. Co., Buffalo, N. Y. (see page 113).

GETCHELL, S. S., & Sons, Woonsocket, R. I.

GLEASON-Peters Air Pump Co., Mercer and Houston Sts., New York, N. Y.

GRAY & Sons, Peter, 90 Union St., Boston, Mass.

HAYES Mfg. Co., Detroit, Mich.

INTERNATIONAL Non-Explosive Tank Co., 84-86 Nassau St., New York.

IRONCLAD Mfg. Co., Brooklyn, N. Y.

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

KELLS, W. J., Mfg. Co., Jersey City, N. J. (see page 101).

KINSEY Mfg. Co., Dayton, O. (see page 61).

KIRK-Latty Co., Cleveland, O.

MANUFACTURERS Can Co. (The), 132-36 Mulberry St., Newark, N. J.

MAYO Radiator Co., New Haven, Conn. (see page 115).

NATIONAL Tank Co., 10-16 Canal St., Dayton, O. (see page 129).

PRESSED Steel Tank Co., Milwaukee, Wis.

PURSELL Mfg. Co., P. M., 802 Beecher St., Indianapolis, Ind. (see page 57).

STANDARD Welding Co., 41 Cone St., Cleveland, O.

TRAGESER Steam Copper Wks., John, 447-457 W. 26th St., New York.

WALKER & Son, James, Detroit, Mich.

WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page 129).

WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page 129).

WRIGHT Cooler & Hood Mfg. Co., Chicago, Ill.

TANKS (Gas Generating)

AMERICAN Generator Co. (The), 63d St. and Park Ave., N. Y. City.

TANKS (Storage)

BOWSER & Co., S. F., Ft. Wayne, Ind. (see page opposite).

BOYER-Radford & Gordon Tank & Pump Co., Dayton, O.

BROWN Oil Can Co., Dawson St., Toledo, O.

EASTERN Oil Tank Co., Lowell, Mass.

GETCHELL, S. S., & Sons, Woonsocket, R. I.

GILBERT & Barker Mfg. Co., 82 John St., N. Y. City.

GLEASON-Peters Air Pump Co., Mercer and Houston Sts., N. Y. City.

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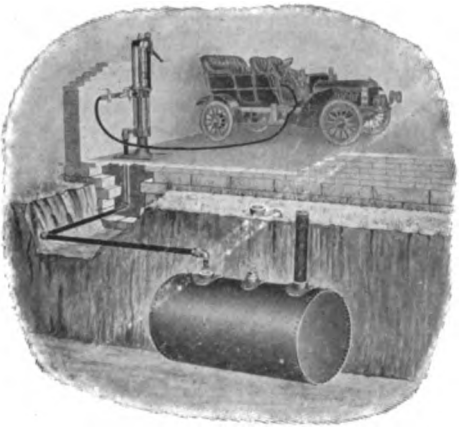
The Law's Demand!

Complied with by the Bowser

In the cities of New York, Chicago, Philadelphia, Boston and San Francisco, where the regulations regarding gasolene storage are the most rigid, the Bowser Long Distance System is used exclusively, because it meets every demand of the municipal laws and insurance requirements.



This Outfit Meets All the Requirements

Imagine a street a mile long built solidly on both sides with public garages. Then you would have an idea of the number of public garages in New York City alone which are equipped with Bowser Outfits.

The Bowser is recognized as

The Standard Garage Equipment

For Gasolene Storage

because it has always stood the test. In San Francisco there were 250 Bowser tanks during the great earthquake and fire, and not one of them exploded.

The installation of a Bowser means safety to both life and property. In addition, it saves enough within a year to pay its own cost.

For further information write for catalog 12. It tells all the reasons why.

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Fort Wayne, INDIANA

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HYDRAULIC Oil Storage & Distributing Co., 820 Penobscot Bldg., Detroit, Mich.

IRONCLAD Mfg. Co., 204 Varet St., Brooklyn, N. Y.

KALTENBACH, Fred, 12 N. Jefferson St., Chicago, Ill.

NATIONAL Tank CO., 10-16 Canal St. Dayton, O. (see page 129).

SAFETY Tank Co., 25 W. 42d St., N. Y. City.

STOUTENBOROUGH, X., 277 Pearl St., N. Y. City.

TOKHEIM Mfg. Co., Cedar Rapids, Iowa.

WESTERN Oil Pump Co., 2447 Kosciusko St., St. Louis, Mo. (see page 129).

WILSON & Co., F. Cortez, 247 Lake St., Chicago, Ill. (see page 129).

TAPER PINS (See Screw Machine Products)

TIMERS (See Spark Timing Devices)

TIRES (Cellular)

BROOKE, M. E., Denver, Colo.

IDEAL Auto Tire Co., Detroit, Mich.

MILWAUKEE Rubber Works Co., Cudahy, Wis.

MITCHELL Punctureless Pneumatic Tire Co., Swampscott, Mass.

RUBBER Tire Co. (The), 1215 Arch St., Phila., Pa.

VOORHEES Rubber Mfg. Co., Bostwick Ave., Jersey City, N. J.

TIRES (Leather)

AMERICAN Tire Co., Owosso, Mich.

CENTRAL Leather and Rubber Tire Works, 238-240 W. 50th St., N. Y. City.

SALISBURY Tire Co., St. Johns, Mich.

SAMSON Leather Tire Co., 12 W. 33d St., N. Y. City.

TIRES (Pneumatic)

AJAX-Grieb Rubber Co., 420 East 106th St., New York.

CONTINENTAL Caoutchouc Co., 43 Warren St., N. Y. City (see page 5).

DIAMOND Rubber Co., Akron, O.

ELECTRIC Rubber Mfg. Co., Rutherford, N. J.

FEAR Naught Tire & Rubber Co., Paterson, N. J.

FISK Rubber Co., Chicopee Falls, Mass.

G & J Tire Co., 549 E. Georgia St., Indianapolis, Ind. (see page 139).

GAULIOS Tire Co., Broadway and 56th St., New York.

GOODRICH, B. F., Co., Akron, O.

GOODYEAR Tire & Rubber Co., Akron, O.

GOSHEN Rubber Works, Goshen, Ind.

HARTFORD Rubber Works Co., Hartford, Conn. (see page opposite).

INTERNATIONAL Auto. & Vehicle Tire Co., 90-92 W. B'way, N. Y. City.

KOKOMO Rubber Co., Kokomo, Ind.

MICHELIN Tire Co., 6 W. 29th St., N. Y. City.

MITCHELL Pneumatic Tire Co., Swampscott, Mass.

MORGAN & Wright, Detroit, Mich. (see page 137).

PENNSYLVANIA Rubber Co., Jeannette, Pa.

TIRES (Solid)

ALDEN Rubber Co., Barberton, O.

BATAVIA Rubber Tire Co., Batavia, N. Y.

CALUMET Rubber Tire Co. (The), 43d & Wabansia Ave., Chicago, Ill.

CONSOLIDATED Rubber Tire Co., 40 Wall St., N. Y. City.

DAVIE & Co., 1310-1314 Wallace St., Phila., Pa.

DIAMOND Rubber Co., Akron, O.

EMPIRE Rubber Mfg. Co., Trenton, N. J.

FIRESTONE Tire & Rubber Co., Miller St. and Sweitzer Ave., Akron, O.

GOODRICH, B. F., Co., Akron, O.

GOODYEAR Tire & Rubber Co., Akron, O.

HARTFORD Rubber Wks. Co., Hartford, Conn. (see page opposite).

INDIA Rubber & Insulated Wire Co., Jonesboro, Ind.

INDIA Rubber Co., New Brunswick, N. J.

INTERNATIONAL Auto. & Vehicle Tire Co., Milltown, N. J.

KOKOMO Rubber Co., Kokomo, Ind.

MAHONING Rubber Co., Youngstown, O.

MORGAN & Wright, Detroit, Mich. (see page 137).

NEW JERSEY Car Spring & Rubber Co., Jersey City, N. J.

NEW YORK Belting & Packing Co., 25 Park Pl., N. Y. City.

ONEIDA Rubber Tire Wks., Oneida, N. Y.

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Prices and Quality Absolutely Maintained

An Unequivocal Statement—Let All Concerned "Bank Upon It"

¶ There has been much talk of late about the "unsettled state of the tire market," etc., with guarded intimations that reduced prices (or larger discounts) would soon prevail. This is probably true in some quarters, but there will be nothing of the kind in connection with Hartford automobile tire products. ¶**You can bank upon it** that any reductions from present prices will be solely at the expense of quality. **We absolutely will not compromise on quality,** but shall continue to make, as we have always made, the very best automobile tires in the world. Purchasers will find it economical in the end to pay these prices, and the trade will handle them with the same satisfaction and ultimate advantage as formerly.

AUTUMN, 1906 **THE HARTFORD RUBBER WORKS CO.**

Infringements Will Be Stopped!

It is generally understood that unauthorized Dunlop-type automobile tires are about to be offered to the trade and public by a prominent rubber manufacturing company. As a direct infringement of the exclusive patents of The Hartford Rubber Works Co., such action will be opposed by every legal and business resource within our command.

Upon first public offer of such unauthorized Dunlop-type tires for sale, or other evidence of this infringement, the offending manufacturer will be legally enjoined from either making or selling this type of tire. And the same methods will be applied to any man or firm, irrespective of location, who attempts to sell them.

Dunlop-type tires, other than those made by The Hartford Rubber Works Co., or their licensees, will therefore be kept out of the market at all hazards. Both manufacturers and dealers will find it to their advantage to be on the safe side and refuse to equip with or otherwise handle them.

Don't be fooled by reduced prices or enlarged discounts, real or rumored. Neither of these means improvement in quality; invariably it means just the opposite. For both satisfaction and economical maintenance, *quality* is essential.

THE HARTFORD RUBBER WORKS CO.

Hartford, Connecticut, U S. A.

Branches: **New York Philadelphia Chicago Detroit Los Angeles Boston Buffalo Cleveland Denver San Francisco**

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PENNSYLVANIA Rubber Co., Jeannette, Pa.

REVERE Rubber Co., Boston, Mass.

ST. JOHN Rubber Tire Co., 116 Broad St., N. Y. City.

STEIN Double Cushion Tire Co., Akron, O.

SWINEHART Clincher Tire & Rubber Co., Akron, O. (see page opposite).

VICTOR Rubber Tire Co., Springfield, O.

TIRE ALARMS

BALDWIN Chain & Mfg. Co., Worcester, Mass.

TIRE CASES

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BURGIN Bros., Springfield, Mass.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

HOPEWELL Bros., 42 Osborne St., Cambridge, Mass. (see page 93).

KIMBALL Tire Case Co., Council Bluffs, Ia.

LONDON Auto Supply Co., 1235 Michigan Ave., Chicago, Ill. (see page 117).

NATHAN Anklet Support Co. (The), 88 Reade St., N. Y. City.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

SEITZ, C., 207 E. 35th St., N. Y. City.

TEEL Mfg. Co., 132 Main St., Medford, Mass.

WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

WILEY, Wm. H. & Son Co., Box 30, Hartford, Conn. (see page 93).

TIRE FLUID

BIKO Mfg. Co., Hubbardson, Mass.

BUFFALO Specialty Co., 375 Ellicott St., Buffalo, N. Y.

CHICAGO Tire Filling Co., 122 S. Green St., Chicago, Ill.

LINOLE Mfg. Co., Santa Clara, Cal.

LONGHURST, James S., Lynbrook, L. I., N. Y.

MOORE, Geo. P., Co., 305 Van Ness Ave., San Francisco, Cal.

NEWMASTIC Tire Co., Chicago, St. Louis, Los Angeles and New York.

N. Y. Anti-Puncture Tire Co., 132 W. 49th St., New York.

TIRE HOLDERS

ALLEN Bag & Specialty Co. (The), 1931 Broadway, N. Y. City.

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

LONDON Auto Supply Co., 1235 Michigan Ave., Chicago (see page 117).

TIRE IRONS

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

TIRE PLUGS

COX & Spencer, Rahway, N. J.

DIAMOND Rubber Co., Akron, O.

GOODRICH, B. F., Co., Akron, O.

HUNTINGTON Automobile Co., Huntington, L. I. N. Y. (see page 21).

PNEUMATIC Tire Plug Co. (The), Danbury, Conn.

TINGLEY & Co., Chas. O., Rahway, N. J.

TIRE PROTECTORS

ADWEAR Tire Sleeve Co., North Attleboro, Mass.

ALLEN Bag & Specialty Co. (The), 1931 Broadway, N. Y. City.

AMERICAN Anti-Puncture Tire & Auto Co., 1693 Broadway, N. Y. City.

AMERICAN Tire Co., Owosso, Mich.

BROWN Mfg. Co., J. C., Butler, Ind.

CHICAGO Rawhide Mfg. Co., 75 Ohio St., Chicago, Ill.

GALLIEN, A. E., 12 W. 33d St., N. Y. City.

GILBERT Mfg. Co., New Haven, Conn. (see page 93).

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For Pleasure and Commercial Cars

The Solid Tire with the Resiliency of a Pneumatic

WHY NOT TAKE THE AGENCY FOR YOUR TOWN?

Particulars on Request

The Swinehart Clincher Tire & Rubber Co.

AKRON, OHIO, U. S. A.

MORGAN & WRIGHT TIRES

stand pre-eminent among auto tires

in the quality and quantity of service given for every dollar of cost

They positively reduce the cost of car maintenance

Clincher—Dunlop—Bailey "Won't Slip" Tread.

MORGAN & WRIGHT, Detroit, Mich.

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New York	Boston	Cleveland	Detroit	Atlanta
Kansas City	Los Angeles	Portland	Syracuse	Philadelphia
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HOWARD Mfg. Co., Attleboro, Mass.

HUMPHREYS, J., 1021 N. E. Payne Ave., Cleveland, O. (see page 39).

KIMBALL Tire Case Co., Council Bluffs, Ia.

LEATHER Tire Goods Co., Newton Upper Falls, Mass. (see page 23).

MESINGER Mfg. Co., H. & F., 1801-1803 First Ave., N. Y. City.

MORE-POWER Co., 619 Gorham St., Lowell, Mass.

PNEUMATIC Tire Protector Co., 14-16 S. St. Clair St., Dayton, O.

SLAMA Tire Protector Co., Humboldt, Neb.

TIRE REPAIR KITS

AUTO Goods Co., 425 Butler Exch., Providence, R. I.

COLE, G. W., Co., 143 B'way, N. Y. City.

DIAMOND Rubber Co., Akron, O.

GOODRICH, B. F., Co., Akron, O.

GOODYEAR Tire & Rubber Co., Akron, O.

HARTFORD Rubber Works Co., Hartford, Conn.

RHODES Mfg. Co., 421 W. Bridge St., Grand Rapids, Mich.

SCHWAB, Louis, 134 Milford Ave., Newark, N. J.

UNION Mfg. Co., 506-508 Genesee St., Buffalo, N. Y.

TIRE SHOES

MANNING Mfg. Co., Holyoke, Mass.

TIRE STRAPS

LEATHER Tire Goods Co., Newton Upper Falls, Mass. (see page 23).

TIRE TAPE

GOODYEAR Tire & Rubber Co., Akron, O.

MASS. Chemical Co., 200 Summer St., Boston, Mass.

NATIONAL Cement & Rubber Mfg. Co., 3053 Monroe St., Toledo, O.

NATIONAL India Rubber Co., Bristol, R. I.

TIRE TOOLS

BLANCHARD, A. W., 10 Clinton St., Brooklyn, N. Y.

GOODRICH, B. F., Co., Akron, O.

HANCOCK & Heller, 184-190 Water St., Binghamton, N. Y.

LONG & Mann Co. (The), 527 Central Bldg., Rochester, N. Y. (see page 43).

MAXWELL & Co., L. R., Cedar Rapids, Ia.

MORGAN & WRIGHT, Chicago, Ill. (see page 137).

REMSBURG Mfg. Co., E. E., Main & Weston Aves., Springfield, O.

RHODES Mfg. Co., Grand Rapids, Mich.

UNEEDME Tire Tool Co., Columbus, O.

TIRE TUBES (Inner)

CONTINENTAL Rubber Wks., Erie, Pa.

ELECTRIC Rubber Mfg. Co., Rutherford, N. J.

PARKER, Stearns & Co., 228-229 South St., N. Y. City (see page opposite).

TOOLS

BURNHAM, Geo. Co. (The), Worcester, Mass.

FRASSE Co. (The), 38 Cortlandt St., N. Y. City.

FRASSE, Peter A., & Co., 94 Fulton St., N. Y.

GOODELL-Pratt Co., Greenfield, Mass.

HAMMACHER, Schlemmer & Co., New York.

KONIGSLOW Mfg. Co., Otto, Cleveland, O. (see page 91).

NORTON & Jones Machine Tool Works (The), East Main St., Plainville, Conn.

PATTERSON, Gottfried & Hunter, 146 Centre St., New York.

SMITH & Heminway, 296 Broadway, New York.

SPRINGFIELD Drop Forging Co., Springfield, Mass.

UNIVERSAL Tool Co., 54 Taylor St., Springfield, Mass.

UTICA Drop Forge & Tool Co., 296 Broadway, New York, N. Y.

VANDERBEEK Tool Wks., Hartford, Conn.

WATERBURY Tool Co., Waterbury, Conn.

TOOL BAGS

BOYLE & Co., John, 112-114 Duane St., N. Y. City.

WARREN Leather Goods Co., 80 Austin St., Worcester, Mass.

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AMERICAN Top Co., Jackson, Mich.

AUTOMOBILE Buggy Top Co. of America, Noxen, Pa.

AUTO Cape Top Co., 1465 Michigan Ave., Chicago Ill.

AUTOMOBILE Parts & Equipment Co., 2228 Michigan Ave., Chicago, Ill. (see page 25).

AUTOMOBILE Top & Supply Co., Cleveland, O.

AUTO Top Co., of N. Y., 509 W. 30th St., N. Y. City.

BALTIMORE Buggy Top Co., Baltimore, Md.

BARNDT-JOHNSTON Auto Supply Co. (The), Columbus, O. (see page 31).

BAUER Bros., 937 W. 8th St., Cincinnati, O.

BEEBE, A. M., 441 Elm St., New Haven, Conn.

BLASIER Mfg. Co., M. E., Utica, N. Y.

BLISS, Chas. P., Denver, Colo.

BRIGGS Carriage Co., Amesbury, Mass.

BROWN Auto Top Co., Philadelphia, Pa.

BUOB & Scheu, 408-412 Court St., Cincinnati, O.

CHICAGO Coach & Carriage Co., 1223 Michigan Ave., Chicago, Ill.

COLEMAN Auto Top Co., Detroit, Mich.

COLLINS & Son, G. A., Akron, O.

CORTLAND Carriage Goods Co., Cortland, N. Y.

DETROIT Carriage Co., Detroit, Mich.

DETROIT Motor Car Supply Co., 1250 Jefferson Ave., Detroit, Mich.

DUANE Co., W. J., New York City.

ECLIPSE Buggy Co., Fort Wayne, Ind. (see page 117).

EMPIRE Gear & Top Co., 53 Mechanic St., Newark, N. J.

EMPIRE Gear & Top Co., 413 N. 22d St., Philadelphia, Pa.

EVERETT, B. F., Detroit, Mich.

FELLWOCK Roll & Panel Co. (The), Evansville, Ind.

FISHER, A., 302-310 Fort St. W., Detroit, Mich.

HALLIDAY, C. A., 42 Cedar St., Oneida, N. Y.

HILL Manufacturing Co., 1396 West Ave., Buffalo, N. Y.

HOLMES Bros., Detroit, Mich.

INDIANAPOLIS Auto Top Co., 25 E. Ohio St., Indianapolis, Ind.

INDIANAPOLIS Buggy Top Co., 2116 So. Meridian St., Indianapolis, Ind.

INDIANAPOLIS Dash Co., Indianapolis, Ind.

KIMBALL & Co., C. P., Chicago, Ill.

KING Mfg. Co., Springfield, O. (see page 117).

KNOWLTON, C. W., Hudson, Mass.

KROH, C. Z., Mfg. Co., Toledo, O.

LARRIMORE Buggy Top Co., Baltimore, Md.

LIMOUSINE & Carriage Mfg. Co., 35th St. and Michigan Ave., Chicago, Ill.

LONDON Auto Supply Co. (The), 1235 Michigan Ave., Chicago, Ill. (see page 117).

LONGDIN-Brugger Co., Fond-du-lac, Wis.

McCLELLAN, Chas. P., Fall River, Mass.

MECKEL, F. L., 77 E. 13th St., Chicago, Ill.

MEYER, C. G., Main & Ann Sts., Tiffin, O.

MICHIGAN Auto. Body Co., Detroit, Mich.

MICHIGAN Top Co., 17 Duffield St., Detroit, Mich.

MOORE & Munger Co., 602 West 52d St., New York.

MOUNT & Bros., J. W., Red Bank, N. J.

MURRAY & Co., P. A., Newton, Mass.

MYERS Auto Top Co. (The), Dayton, O. (see page 117).

NEUMEISTER, Fred P., Rockford, Ill.

NEWTON, W. H., & Son, 127 Elm St., Cortland, N. Y.

NEW York Carriage Top Co., 509 W. 30th St., N. Y. City.

NICHOLS & Co., D. P., 116-122 W. Brookline St., Boston, Mass.

O'NEILL-Ollier Co., 1532-34 Michigan Ave., Chicago, Ill.

PARSONS Buggy Top Co., Chicago, Ill.

RACINE Novelty Mfg. Co., 600 6th St., Racine, Wis.

RANDS Mfg. Co., 51-55 Macomb St., Detroit, Mich.

RECKARD Auto Top Co., 938 N. Illinois St., Indianapolis, Ind.

REX Auto Top Co., 61 E. Spring St., Columbus, O. (see page 87).

RITTER Mfg. Co., 255 Jefferson Ave., Detroit, Mich.

ROBBINS & Co., Irwin, Indianapolis, Ind.

ROBERTSON & Doll, Denver, Colo.

RUSSELL, H. J., 32 Exchange St., Worcester, Mass.

SCHUBERT Bros. Gear Co., 42-44 Cedar St., Oneida, N. Y.

SHIELDS Carriage Co., Amesbury, Mass.

SNOW & Co., N. H., Binghamton, N. Y.

SPRAGUE Umbrella Co., Norwalk, O. (see page 131).

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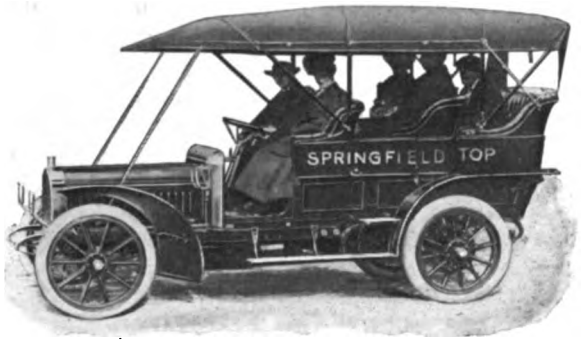

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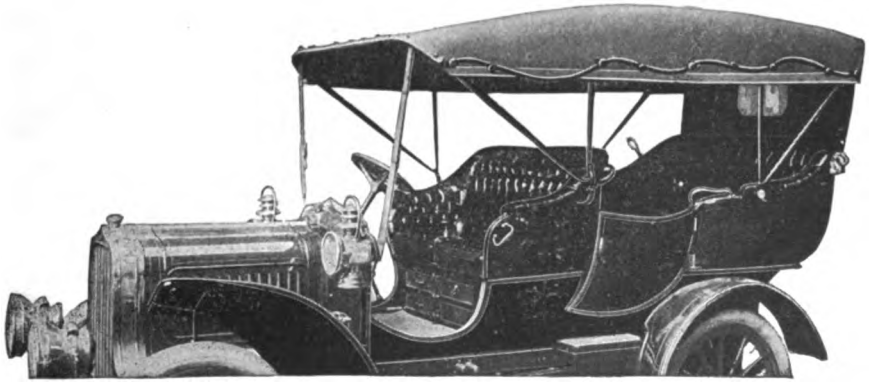

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SPRINGFIELD Metal Body Co., 387 Birnie Ave., Brightwood, Mass. (see page 141).

STONE & Sons, C., 167 Ogden St., Chicago, Ill.

STUDEBAKER Bros. Mfg. Co., 378 Wabash Ave., Chicago, Ill.

TROY Carriage Sunshade Co., Troy, O.

VEHICLE Supply Co. (The), 728 N. Main St., St. Louis, Mo.

WARNER Pole and Top Co., 1655 Central Ave., Cincinnati, O. (see page 141).

WEISS, Chas., 4725 Cottage Grove Ave., Chicago, Ill.

WOOD & Sons, Fred'k R., 219 W. 19th St., N. Y. City.

TOP FIXTURES

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 43).

DRUEN, B. D., 71 Hamilton St., New Haven, Conn.

TRIMMINGS (Cloth and Carpet)

ADAMS, Wm. F., 339 B'way, N. Y. City.

BRIDGEPORT Coach Lace Co., 805 Wood Ave., Bridgeport, Conn.

CARR, F. S., 74 Pearl St., Boston, Mass. (see page opposite).

CRANDALL, Stone & Co., Binghamton, N. Y.

DUSENBURY, Louis, 86 Worth St., N. Y. City.

EVERETT, B. F., Detroit, Mich.

GERHAB, Jacob, 158-164 No. 3d St., Philadelphia, Pa.

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HARDT, Von Bernuth & Co., 477 Broome St., N. Y. City.

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LANDERS Bros. Co., 445 10th St., Toledo, O. (see page opposite).

MANUFACTURERS' Selling Co. (The), 1777 Broadway, N. Y. City.

MUTTY, L. J., 276 Devonshire St., Boston, Mass. (see page opposite).

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NEW Haven Button Co., New Haven, Conn.

RARITAN Woolen Mills, 14 White St., N. Y. City.

ROEHM & Davison, Detroit, Mich.

ROUSE, J. G., & Co., 413 Arch St., Phila., Pa.

ROY & Co., James, Watervleit, N. Y.

SCHOFIELD, Mason & Co., Fairhill and Cumberland Sts., Philadelphia, Pa.

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WATERLOO Woolen Mfg. Co., Waterloo N. Y.

TRIMMINGS (Leather) (See Leather)

TRIMMINGS (Metal)

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ANDERSON & Co., F. W., 1409-13 Montrose St., Philadelphia, Pa.

ATWOOD Mfg. Co., Amesbury, Mass.

AUTOMOBILE Parts & Equipment Co., 2228 Michigan Ave., Chicago, Ill. (see page 25).

BARLOW Mfg. Co., Holyoke, Mass.

CLARK Novelty Co. (The), 380 W. Exchange St., Rochester, N. Y.

COOPS Co., C. W., 3 Appleton St., Boston, Mass. (see page 43).

COWLES, C., & Co., New Haven, Conn.

CRANDALL, Stone & Co., Binghamton, N. Y.

DOUGLAS & Lomason Co., 306 Grand River Ave., Detroit, Mich.

ENGLISH & Mersick Co. (The), 70-74 Crown St., New Haven, Conn.

FORT Wayne Brass Foundry Co., 44 Jefferson Ave., Detroit, Mich.

GLOBE Machine & Stamping Co. (The), Cleveland, O. (see page 91).

LEE Mfg. Co. (The), South Park, Port Huron, Mich.

METAL Stamping Co., 243 West St., N. Y.

MURDOCK, Jas., Jr., & Co., 116 Opera Pl., Cincinnati, O. (see page 93).

NEIDER Co., F. A. (The), Augusta, Ky. (see page 43).

ROEHM & Davison, Detroit, Mich.

SCHERER, H., & Co., 280 Jefferson Ave., Detroit, Mich.

SMITH, Jos. N., & Co., Fourth & Porter Sts., Detroit, Mich.

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WOODRUFF & Sons Co., Walter W. (The), Mount Carmel, Conn.

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BOYLE & Co., John, 112-114 Duane St., N. Y. City.

SAGE'S Trunk Depot, Boston, Mass.

TEEL Mfg. Co., 132 Main St., Medford, Mass.

W. W. Winship, 71 Summer St., Boston, Mass.

TRUNK RACKS

CONNECTICUT Steel & Wire Co., 308 Pearl St., Hartford, Conn.

TEEL Mfg. Co., 132 Main St., Medford, Mass.

TUBING (Brass and Copper)

AMERICAN Tube Wks., 137 Milk St., Boston, Mass.

ANSONIA Brass & Copper Co., Ansonia, Conn.

BENEDICT & Burnham, Waterbury, Conn.

BRIDGEPORT Brass Co., Bridgeport, Conn.

BRISCOE Mfg. Co., Detroit, Mich., and Newark, N. J. (see page 57).

CHICAGO Brass Co., Kenosha, Wis.

CRAMP & Sons' Ship & Eng. Bldg. Co., Wm., Philadelphia, Pa.

DETROIT Copper & Brass Rolling Mills, Detroit, Mich.

HOLMES, Booth & Hayden Co. (The), Waterbury, Conn.

IVINS, Elwood Tube Works, Oak Lane Station, Philadelphia, Pa.

LONG Mfg. Co., 1430-34 Michigan Ave., Chicago, Ill.

LONG-Turney Mfg. Co., Rome, N. Y.

NEW Jersey Tube Co., Newark, N. J.

RANDOLPH-Clowes Co., Waterbury, Conn.

ROME Brass & Copper Co., Rome, N. Y.

SIMONS, John, Co., 104-110 Centre St., N. Y. City.

STOLP Mfg. Co., Huron & Townsend St., Chicago, Ill. (see page 113).

TUBING (Flexible)

ANGLO-American Flexible Metallic Tubing Co., New York, N. Y.

AUTOMOBILE Supply Mfg. Co., 139-147 Emerson Pl., Brooklyn, N. Y.

COATES Clipper Mfg. Co., Worcester, Mass.

FLOWER & Co., Walter L., St. Louis, Mo.

MANHATTAN Screw & Stamping Co., 7th Ave. and 11th St., New York City.

SMITH, Albanus L. & Co., 1305 Arch St., Philadelphia, Pa. (Importer).

TUBING (Steel)

AMER. Tube & Stamping Co., Bridgeport, Conn.

DELAWARE Seamless Tube Co., Auburn, Pa.

DETROIT Seamless Steel Tubes Co., 833 River St., Detroit, Mich.

IVINS, Elwood Tube Wks., Oak Lane Station, Philadelphia, Pa.

LAMINATED Tube Co., Columbus, O.

NATIONAL Tube Co., McKeesport, Pa.

PITTSBURG Seamless Tube Co., Beaver Falls, Pa.

SHELBY Steel Tube Co., 1819 Frick Bldg., Pittsburg, Pa.

STANDARD Welding Co., 41 Cone St., Cleveland, O.

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FORG, Peter, Park St., Somerville, Mass.

NILES-Bement-Pond Co., New York City.

NOVELTY & Repair Shop (The), Milford, Ohio.

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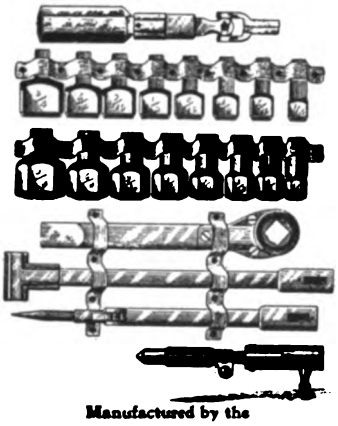

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JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

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AMERICAN Steam Gauge & Valve Mfg. Co., Jamaica Plains, Boston, Mass.

ARTIZAN Brass Co., 116 Michigan St., Chicago, Ill.

ASHTON Valve Co. (The), 271 Franklin St., Boston, Mass.

CROSBY Steam Gage & Valve Co., Boston, Mass.

LONERGAN & Co., J. E., Philadelphia, Pa.

LUNKENHEIMER Co., Cincinnati, O.

PITTSBURG Gage & Supply Co., 309 Water St., Pittsburg, Pa.

SCHAEFFER & Budenberg, Foxboro, Mass.

SIMMONS Co., John, N. Y. City.

STANDARD Gauge Mfg. Co., Industrial Bldg., Syracuse, N. Y.

STAR Brass Mfg. Co., Boston, Mass.

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WESTERN Tube Co., Kewanee, Ill.

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HILTON Valve Co., Middleboro, Mass.

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TIRE Safety-Device Co., 214 W. 124th St., N. Y. City.

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NOLTE Brass Co., Springfield, O.

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SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

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VINCENT Valve Co. (The), Sandusky, O.

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BRENNAN Mfg. Co., Syracuse, N. Y.

ECKEL, Andrew, 1080 3d Ave., Brooklyn, N. Y.

JAMES, Wm., 92 Liberty St., N. Y. City.

PELTON Gaso. Eng. Wks., Lyons, Ia.

VARNISHES

ACME White Lead & Color Wks., Detroit, Mich.

ADAMS & Elting Co., 155 W. Washington St., Chicago, Ill.

ARMITAGE & Co., John L., Newark, N. J.

BABCOCK Varnish Co., Boston, Mass.

BECKWITH, Chandler & Co., Newark, N. J.

BERRY Bros., Ltd., Detroit, Mich. (see front cover).

BILLINGS-Chapin Co., Cleveland, O.

BOSTON Varnish Co., Everett Sta., Boston, Mass.

BUFFALO Enamel & Stain Co., 70 W. Genesee St., Buffalo, N. Y.

CALMAN, Emil, 299 Pearl St., New York, N. Y.

CLEVELAND Varnish Co., Cleveland, O.

COLUMBUS Varnish Co. (The), Columbus, Ohio.

DETROIT White Lead Works, 532 Milwaukee Ave., Detroit, Mich.

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DITZLER Paint & Color Co., 14 Baltimore Ave., West., Detroit, Mich.

FELTON, Sibley & Co., 136-140 No. 4th St., Phila., Pa.

FLOOD & Conklin Co., 136 Chestnut St., Newark, N. J.

GILLESPIE, Chas. H., & Sons, 125 Dey St., Jersey City, N. J.

GLIDDEN Varnish Co., Williamson Bldg., Cleveland, O.

HILDRETH Varnish Co., 32 B'way, N. Y.

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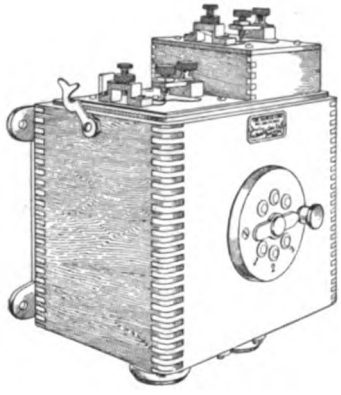

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SMITH, Edward, & Co., 45 B'way, N. Y.

STANDARD Varnish Co., 29 B'way, N. Y.

VALENTINE & Co., 257 Broadway, N. Y. City.

WATTS De Golyer Co. (The), 377 Illinois St., Chicago, Ill.

WESTERN Reserve Varnish Co., Marquette St., Cleveland, O.

WILLEY, C. A., Hunter's Point, New York.

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VOLTMETERS (See Ammeters and Voltmeters)

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ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (see page 43).

AUTO-TIRE Vulcanizing Co., Lowell, Mass.

CAIN, Frank, 202 4th Ave., Detroit, Mich.

CORP Bros., 40 Mathewson St., Providence, R. I.

FISK Rubber Co., Chicopee Falls, Mass.

INVINCIBLE Mfg. Co., Wilmington, Ill.

MAXSON Vulcanizing Works, 115 Main St., W. Rochester, N. Y.

NATIONAL Cement & Rubber Mfg. Co., 3053-59 Monroe St., Toledo, O.

SHALER, C. A., Waupun, Wis.

STITCH in Time Vulcanizer Co., 831 Kansas Ave., Topeka, Kans.

WASHERS

ARMSTRONG Cork Co., 23d St., and A. V. Ry., Pittsburg.

BOWEN Mfg. Co., Auburn, N. Y.

CLARK, A. N., & Son, Plainville, Conn.

GLOBE Machine & Stamping Co., Hamilton Ave., Cleveland, O. (see page 91).

HOFFELD, R., & Co., 61-63 Carroll St., Buffalo, N. Y.

LEATHER & Brass Mfg. Co., Auburn, N. Y.

MERRIAM, Wm. N., Taunton, Mass.

NATIONAL Lock Washer Co. (The), 65-79 Johnson St., Newark, N. J. (see page opposite).

POSITIVE Lock Washer Co., Newark, N. J. (see page opposite).

SCHOONMAKER, A. O., 221 Fulton St., N. Y.

STIMPSON, E. B., & Son, 31 Spruce St., N. Y.

UPSON Bolt & Nut Co., Cleveland, O.

WOLVERINE Leather Goods Co., 59 E. Fort St., Detroit, Mich.

WASHERS (Felt)

BOWEN Mfg. Co., Auburn, N. Y.

BRAUNSDORF, Geo. W., 309 E. 43d St., N. Y. City.

N. E. BOOTH, 261 39th St., Brooklyn, N. Y. (see page opposite).

WASHING MACHINERY

CONN. Supply Co., Hartford Life Ins. Bldg., Hartford, Conn.

IDEAL Carriage Washer Co., 62 Lenox St., Rochester, N. Y.

NICHOLSON Mfg. Co., H., 68 Dey St., N. Y.

RYAN & Long, 586 Oneida St., Appleton, Wis.

VEHICLE Specialty Co., 32 Union Pl., Hartford, Conn. (see page 73).

WATER ALARMS AND COLUMNS

JARVIS Engine & Machine Works, River and Spring Sts., Lansing, Mich.

KITTS Mfg. Co., 111-115 Water St., Oswego, N. Y.

LOCKE Regulator Co., Salem, Mass.

PITTSBURG Gauge & Supply Co., 309 Water St., Pittsburg, Pa.

RELIABLE Water Gauge Co., 1616 Pine St., St. Louis, Mo.

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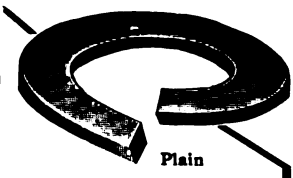

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SHERWOOD Mfg. Co., Elmwood Ave. and Belt Line, Buffalo, N. Y.

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ATWOOD Mfg. Co., Amesbury, Mass.

KNOX, The Frank J. Co., Hartford, Conn.

WELDING (Electric)

STANDARD Welding Co., Cleveland, O.

WHEELS (Comb'n Wood and Wire)

ESTY, Wm., Laconia, N. H.,

LEE & Porter, Buchanan, Mich.

TOOMEY, C., & Co., 915 Campbell St., Kansas City, Mo.

WHEELS (Tubular Steel)

BRYANT Steel Rim & Wheel Co., Columbus, Ohio.

MIDGELY Mfg. Co., Hacking St. and Dublin Ave., Columbus, O.

PARISH & Bingham Co., Cleveland, O.

TURNER & Fish, 130 So. Clinton St., Chicago, Ill.

WHITESIDE Wheel Co., 311 E. South St Indianapolis, Ind.

WHEELS (Wire)

GARFORD Co. (The), Elyria, O.

JAMESVILLE Mfg. Co., Jamesville, N. Y.

PRUDDEN, W. K., & Co., Lansing, Mich.

RASTETTER, Louis, & Son, Fort Wayne, Ind.

SMITH Co., A. O., Milwaukee, Wis.

WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

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ARCHIBALD Wheel Co., Lawrence, Mass.

BIDDLE & Smart Co., Amesbury, Mass.

BORBEIN Auto Co., St. Louis, Mo.

BUCKEYE Wheel Co., Galion, O.

CARR, Prescott & Co., Amesbury, Mass.

CITY Machine Co., 9 Orchard St., Detroit, Mich.

CRANE & McMahon, 18 South St., N. Y.

EAMES, A. M., & Co., So. Framingham, Mass.

FITCHBURG Wheel Co., Fitchburg, Mass.

HOOPES Bros. & Darlington, West Chester, Pa.

IMPERIAL Wheel Co., Flint, Mich. (see page opposite).

JAMESVILLE Mfg. Co., Jamesville, N. Y.

JONES, Phineas & Co., 301 Market St., Newark N. J. (see page 31).

JONES & Burt, 173 South St., Utica, N. Y.

MADISON Wheel Co., Madison, O.

NATIONAL Wheel Co., Jackson, Mich.

NEW Haven Carriage Co., New Haven, Conn.

OLDS Wagon Wks., Fort Wayne, Ind.

PRUDDEN, W. K., & Co., Lansing, Mich.

SALISBURY Wheel & Mfg. Co., Jamestown, N. Y. (see page opposite).

SCHWARZ Patent Wheel Co., Philadelphia, Pa.

SELLE Gear Co. (The), Akron, O.

SENDELBACH Wheel Co., E. St. Louis, Ill.

SHORTSVILLE Wheel Co., Shortsville, N. Y.

STANDARD Wheel Co., Terre Haute, Ind.

STINSON, Edward, & Co., 327-335 North St., Baltimore, Md.

TIMKEN Roller Bearing Axle Co., Canton, O.

WAPAKONETA Wheel Co., Wapakoneta, O.

WESTON-Mott Co., Flint, Mich., and Utica, N. Y.

WHEEL & Wood Bending Co. (The), 141 John St., Bridgeport, Conn.

ZWICK & Greenwald Wheel Co. (The), Dayton, O.

WHEEL TRUERS

DUDLEY, A., Mfg. Co., Menominee, Mich.

GARVIN Mach. Co., Spring & Varick Sts., N. Y.

WAGNER Cycle Co., 41-43 West 4th St., St. Paul, Minn.

WIND SHIELDS

AUTOMOBILE Parts and Equipment Co., 2228 Michigan Ave., Chicago, Ill. (see page 25).

CARTIER, Chapman & Co., Ludington, Mich.

DUANE & Co., W. J., New York.

LIMOUSINE Carriage Mfg. Co., Chicago, Ill.

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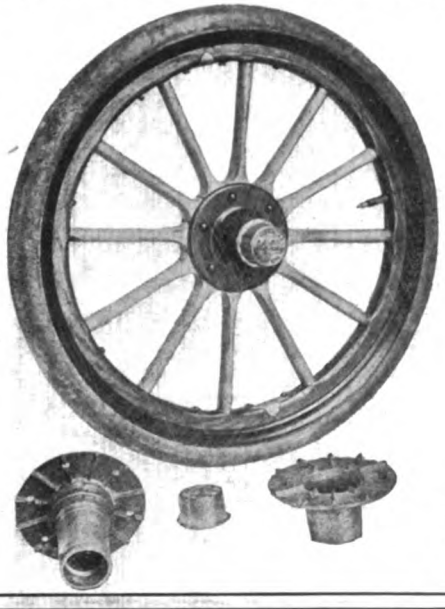

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O'NEILL-Ollier Co., 1532-34 Michigan Ave., Chicago, Ill.

SPRAGUE Umbrella Co., Norwalk, O. (see page 131).

STUDEBAKER Automobile Co., South Bend, Ind.

WIRE (Insulated)

AMERICAN Electrical Works, Providence, R. I.

AMERICAN Steel & Wire Co., The Rookery, Chicago, Ill.

ATLANTIC Insulated Wire & Cable Co., New York.

BOURN Rubber Co., Providence, R. I.

CHICAGO Insulated Wire Co., 152 Lake St., Chicago, Ill.

EASTERN Electric Cable Co., 61-63 Hampshire St., Boston, Mass.

GENERAL Electric Co., Schenectady, N. Y.

HAZARD Mfg. Co., Wilkesbarre, Pa.

INDIA Rubber & Gutta Percha Insulating Co., N. Y. City.

INDIANA Rubber and Insulated Wire Co., Jonesboro, Ind.

MILLER, Norman Bruce, 1420 Chestnut St., Phila., Pa.

NATIONAL India Rubber Co., Bristol, R. I.

NEW YORK Insulated Wire Co., 114 Liberty St., N. Y. City.

OKONITE Co., 253 Broadway, N. Y. City.

PACKARD Electric Co., 412 North Ave., Warren, O.

RUBAY, Leon, 136 W. 38th St., N. Y. City (Importer).

SAFETY Insulated Wire & Cable Co., N. Y.

SIMPLEX Electrical Co., Boston, Mass.

STANDARD Underground Cable Co., Pittsburg, Pa.

WIRE TERMINALS

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

B. & B. Co., 97 Rockview Ave., Plainfield, N. J.

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BLISS-Chester Co., Providence, R. I.

BRIGGS, W. H., 424 Bedford Ave., Brooklyn, N. Y.

EASTERN Carbon Works, Jersey City, N. J.

EXCELSIOR Supply Co., 233-5-7 Randolph St., Chicago, Ill. (Dealers and Jobbers) (see page 35).

FAHNESTOCK Electric Co., 132 Havemeyer St., Brooklyn, N. Y.

FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

HERZ & Co., Elm & Marion Sts., N. Y. City.

NEVER-Miss Spark Plug Co., Lansing, Mich. (see page 75).

NEWPORT Eng. Works, 367 Thames St., Newport, R. I.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

RAJAH Auto. Supply Co., 140 Washington St., N. Y. City.

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AMERICAN Veneer Co., Kenilworth, N. J.

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TUCKER Wood Work Co. (The), Sidney, O.

WRENCHES

ARNSTEIN, Eugene, 35th St. and Shields Ave., Chicago, Ill. (Dealers and Jobbers) (see page 43).

AUTOMOBILE Equipment Co., 263 Jefferson Ave., Detroit, Mich. (Dealers and Jobbers) (see page 9).

AUTOMOBILE Supply Co. (The), 1339 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 11).

BECKLEY-Ralston Co., 79-81-83 Michigan Ave., Chicago, Ill. (Dealers and Jobbers) (see page 49).

BISHOP Auto Supply Co., Olive and Walton Ave., St. Louis, Mo. (Dealers and Jobbers) (see page 65).

BILLINGS & Spencer Co., Russ and Lawrence Sts., Hartford, Conn.

BULLARD Automatic Wrench Co., Providence, R. I. (see page opposite).

COES Wrench Co., Worcester, Mass.

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FRANCO-AMERICAN Auto Supply Co., Chicago, Ill. (Dealers and Jobbers) (see page 37).

HALL'S Sons, Samuel, New York, N. Y.

HAWKEYE Wrench Co., Marshalltown, Ia.

HJORTH Wrench Co., Jamestown, N. Y.

IRLAND Pipe Wrench Co., 15 Court Sq., Boston, Mass.

JANNEY, Steinmetz & Co., Philadelphia, Pa. (see page 21).

JENNINGS & Co., C. E., New York, N. Y.

KIBELE & Co., 187 Wisconsin St., Milwaukee, Wis.

LAMSON & Sessions, 412 Scranton Road, Cleveland, O.

MILLER Combination Tool Co., Syracuse, N. Y. (see page 145).

MOSSBERG, Frank, Co., Attleboro, Mass.

OFFSET Handle Wrench Co., 123 La Salle St., Chicago, Ill.

ORR & Lockett Hardware Co., 71 Randolph St., Chicago, Ill.

PECK, Stow & Wilcox Co., Southington, Conn.

POPE Mfg. Co., Hartford, Conn. (Dealers and Jobbers) (see page 17).

POST & Lester Co. (The), Hartford, Conn. (Dealers and Jobbers) (see page 49).

QUINCY, Manchester, Sargent Co., 203 Dearborn St., Chicago, Ill. (see page 55).

ROTHENBUCHER Mfg. Co., 328 Jerome St., Brooklyn, N. Y.

SMITH & Hemmingway, 296 Broadway, New York.

SPRINGFIELD Drop Forging Co., Springfield, Mass.

SYRACUSE Wrench Co., 300-302 W. Water St., Syracuse, N. Y.

TOWER & Lyon, New York, N. Y.

TRIMONT Mfg. Co., Roxbury, Mass.

TUDOR Mfg. Co., 147 Mill St., Boston, Mass.

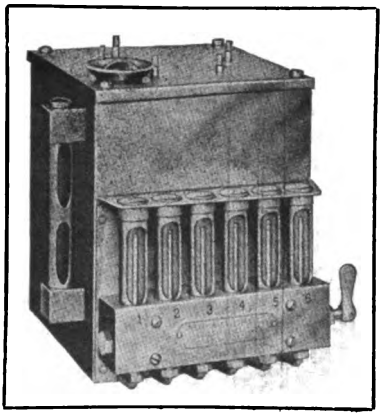
WAKEFIELD, J. E., 89 Exchange St., Worcester, Mass.

WALWORTH Mfg. Co., Boston, Mass.

WHITMAN & Barnes Co., Akron, O.

WILLIAMS & Co., J. H., Brooklyn, N. Y.

WORCESTER Pressed Steel Co., 100 Beacon St., Worcester, Mass.



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TABLES AND DATA FOR ENGINEERS

Reference Tables for Indicated Horsepower

It is often convenient to have a ready reference table, by the aid of which an immediate approximation to the horsepower of a motor can be made when the bore and stroke are known. Such a table has been prepared by Worby Beaumont, the well-known English engineer, who gave permission to the editor of *The Automobile Club Journal* in London to publish it. One table gives the ratings of engines with the cylinder dimensions in inches and fractions, and the other table gives the results with cylinders built to metric measurements. Of course, in a table of this sort, an arbitrary set of conditions as to revolutions, mean effective pressure and mechanical efficiency have to be assumed; those employed represent average practice and the table is not offered as a substitute for experimentation when the most accurate results are desired.

It will be noted from Table I that in a very small space the estimated indicated power of engines with bore and stroke dimensions varying from 2-in. bore and 2-in. stroke to 6-in. bore and 6 1-2-in. stroke is given. Similarly, in Table II, a similar series is given in metric measurement, covering sizes from 70 mm. bore and 70 mm. stroke to 150 mm. bore and 165 mm. stroke. In Table I there is a quarter of an inch difference of size of bore and stroke measurements between any two powers given, and in Table II a difference of 5 mm. In explanation of the tables, it will be seen that in column 1 the bore or cylinder diameter of the engine may be found, and in the columns to the right of this, commencing with the column headed 0, the power of the engine having that cylinder diameter and a stroke of the same dimension. Columns 3 to 10 in each table give the powers of engines of, for instance, the same bore, but having a stroke greater than the bore by the amount stated at the top of the column. For example, referring to Table I, an engine having a cylinder 4 inches in diameter and a stroke of 4 inches would develop, under conditions to be stated 4.27 i.h.p., as shown in the column headed 0; that is, column 2. If, however, the engine has a cylinder bore of 4 inches and a stroke of 5 1-2 inches, then the power developed is as shown in column 8, 5.89 i.h.p.

Similarly, for example, referring to Table II, an engine having a bore and stroke of 100 mm. would give 4.09 i.h.p., and an engine with a cylinder 100 mm. diameter and 140 mm. stroke would give 5.72 i.h.p.

It will be observed that to each bore dimension in column 1, two horizontal lines are given. The first of these gives the calculated power at a speed of 750 revolutions per minute, and the second the power at 1,000 revolutions per minute. The figures for the higher speed are printed in italic type.

The powers given in the tables represent the calculated indicated power given by one cylinder, and when multi-cylinder engines are being considered, the power shown by the table must be multiplied by the number of cylinders to give the total power.

To determine the useful power or brake horsepower, the mechanical efficiency of the engine has to be considered. No general rule can be given for this, and it may vary from a little less than 80 per cent. of the indicated power to as much as 88 per cent. For the majority of four-cylinder engines of good design and in good condition, run at speeds not unsuited to their design, and for powers of not less than 20 b.h.p., the efficiency may be considered to be 85 per cent. within reasonably close limits of accuracy. This figure is, however, merely suggestive, and it is necessary to be familiar with engine design and performances to correctly estimate the brake horsepower from the estimated indicated power of these small high-speed engines.

Very frequently an approximation to the calculated indicated power, or power developed in the cylinders, is all that is required to be known, and this may be taken direct from the tables, for the two named speeds; *i.e.*, 750 or 1,000 revolutions per minute. For other speeds the difference may be taken as arithmetically proportionate through a limited range, according to the type and design of the engine.

Tables on next page

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Horsepower Table I.—Cylinder Dimensions in Inches and Fractions.

Bore	0	¼	½	¾	1	¼	½	¾	2
2	0.54	0.60	0.67	0.74	0.81	0.88	0.94	1.01	1.08
	0.72	*0.80*	*0.89*	*0.98*	*1.08*	*1.17*	*1.25*	*1.35*	*1.44*
2¼	0.76	0.84	0.92	1.01	1.09	1.18	1.26	1.35	1.43
	1.01	*1.12*	*1.22*	*1.34*	*1.45*	*1.57*	*1.68*	*1.81*	*1.90*
2½	1.04	1.15	1.25	1.35	1.46	1.56	1.67	1.77	1.88
	1.39	*1.53*	*1.67*	*1.81*	*1.95*	*2.09*	*2.23*	*2.37*	*2.51*
2¾	1.39	1.51	1.64	1.77	1.89	2.02	2.14	2.27	2.40
	1.85	*2.02*	*2.19*	*2.36*	*2.53*	*2.70*	*2.87*	*3.04*	*3.20*
3	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00
	2.40	*2.60*	*2.80*	*3.00*	*3.21*	*3.40*	*3.61*	*3.81*	*4.00*
3¼	2.30	2.47	2.65	2.82	3.00	3.18	3.36	3.53	3.70
	3.06	*3.28*	*3.52*	*3.76*	*3.99*	*4.22*	*4.45*	*4.70*	*4.92*
3½	2.86	3.06	3.27	3.48	3.68	3.88	4.09	4.30	4.50
	3.81	*4.09*	*4.36*	*4.63*	*4.90*	*5.18*	*5.45*	*5.72*	*6.00*
3¾	3.53	3.76	4.00	4.35	4.47	4.71	4.95	5.18	5.41
	4.71	*5.02*	*5.34*	*5.65*	*5.97*	*6.28*	*6.60*	*6.91*	*7.23*
4	4.27	4.65	4.81	5.08	5.35	5.61	5.89	6.15	6.41
	5.71	*6.06*	*6.42*	*6.78*	*7.13*	*7.50*	*7.85*	*8.20*	*8.55*
4¼	5.13	5.44	5.74	6.04	6.34	6.64	6.95	7.25	7.55
	6.84	*7.24*	*7.64*	*8.05*	*8.45*	*8.85*	*9.25*	*9.66*	*10.06*
4½	6.19	6.53	6.87	7.22	7.56	7.90	8.25	8.59	8.93
	8.25	*8.68*	*9.16*	*9.62*	*10.08*	*10.54*	*10.96*	*11.41*	*11.89*
4¾	7.18	7.55	7.94	8.31	8.70	9.07	9.45	9.82	.....
	9.57	*10.07*	*10.57*	*11.09*	*11.58*	*12.08*	*12.59*	*13.09*	.....
5	8.38	8.80	9.22	9.65	10.05	10.46	10.90	.....	.....
	11.16	*11.72*	*12.28*	*12.84*	*13.40*	*13.95*	*14.50*	.....	.....
5¼	9.70	10.16	10.62	11.09	11.54	12.00	.....	.....	.....
	12.92	*13.54*	*14.15*	*14.76*	*15.40*	*16.00*	.....	.....	.....
5½	11.12	11.65	12.15	12.66	13.15	.....	.....	.....	.....
	14.84	*15.51*	*16.20*	*16.86*	*17.54*	.....	.....	.....	.....
5¾	12.71	13.27	13.82	14.38	.....	.....	.....	.....	.....
	16.96	*17.70*	*18.42*	*19.10*	.....	.....	.....	.....	.....
6	14.45	15.05	15.65	.....	.....	.....	.....	.....	.....
	19.25	*20.05*	*20.85*	.....	.....	.....	.....	.....	.....

Horsepower Table II.—Cylinder Dimensions in Millimeters (Metric System).

Bore	0	5	10	15	20	25	30	35	40
70	1.40	1.50	1.59	1.69	1.80	1.89	1.99	2.10	2.20
	1.87	*2.00*	*2.13*	*2.26*	*2.40*	*2.53*	*2.66*	*2.80*	*2.94*
75	1.72	1.84	1.95	2.07	2.18	2.29	2.41	2.53	2.64
	2.30	*2.45*	*2.60*	*2.76*	*2.91*	*3.06*	*3.22*	*3.37*	*3.52*
80	2.09	2.23	2.35	2.49	2.62	2.76	2.88	3.02	3.14
	2.79	*2.97*	*3.14*	*3.32*	*3.49*	*3.67*	*3.84*	*4.02*	*4.19*
85	2.43	2.65	2.80	2.95	3.09	3.24	3.39	3.54	3.69
	3.34	*3.54*	*3.73*	*3.93*	*4.12*	*4.32*	*4.52*	*4.72*	*4.91*
90	2.97	3.14	3.30	3.46	3.64	3.80	3.96	4.13	4.30
	3.96	*4.18*	*4.40*	*4.62*	*4.85*	*5.06*	*5.28*	*5.50*	*5.72*
95	3.50	3.68	3.87	4.05	4.24	4.42	4.61	4.80	4.98
	4.67	*4.91*	*5.16*	*5.40*	*5.65*	*5.90*	*6.15*	*6.40*	*6.64*
100	4.09	4.29	4.49	4.70	4.90	5.11	5.30	5.51	5.72
	5.45	*5.71*	*5.99*	*6.26*	*6.53*	*6.81*	*7.07*	*7.35*	*7.62*
105	4.73	4.95	5.17	5.40	5.63	5.85	6.08	6.30	6.53
	6.30	*6.60*	*6.90*	*7.20*	*7.50*	*7.80*	*8.10*	*8.40*	*8.70*
110	5.43	5.69	5.93	6.19	6.44	6.68	6.96	7.16	7.42
	7.23	*7.58*	*7.90*	*8.25*	*8.57*	*8.90*	*9.23*	*9.55*	*9.90*
115	6.22	6.48	6.77	7.03	7.30	7.56	7.85	8.11	8.37
	8.30	*8.65*	*9.02*	*9.38*	*9.74*	*10.01*	*10.46*	*10.81*	*11.18*
120	7.07	7.37	7.66	7.96	8.25	8.53	8.84	9.13	9.41
	9.42	*9.82*	*10.21*	*10.61*	*11.00*	*11.39*	*11.79*	*12.18*	*12.57*
125	7.97	8.30	8.63	8.94	9.25	9.57	9.89	10.21	10.54
	10.64	*11.06*	*11.50*	*11.91*	*12.34*	*12.76*	*13.20*	*13.61*	*14.04*
130	8.95	9.30	9.65	9.99	10.34	10.70	11.01	11.38	.....
	11.94	*12.40*	*12.86*	*13.31*	*13.79*	*14.25*	*14.70*	*15.16*	.....
135	10.08	10.44	10.80	11.18	11.56	11.92	12.30	.....	.....
	13.41	*13.91*	*14.40*	*14.90*	*15.41*	*15.90*	*16.40*	.....	.....
140	11.22	11.65	12.04	12.44	12.84	13.25	.....	.....	.....
	14.99	*15.51*	*16.05*	*16.60*	*17.12*	*17.68*	.....	.....	.....
145	12.52	12.98	13.41	13.82	14.25	.....	.....	.....	.....
	16.70	*17.30*	*17.88*	*18.42*	*19.00*	.....	.....	.....	.....
150	13.81	14.26	14.72	15.40	.....	.....	.....	.....	.....
	18.41	*19.01*	*19.64*	*20.23*	.....	.....	.....	.....	.....

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Table of Gradients

GRADE		Equal to Angle of	Rise or Fall in One Mile, Feet
Per Cent	Units		
20	1 in 5	11° 19′	1,056
17	1 " 6	9° 26′	880
14	1 " 7	8° 09′	754
12.5	1 " 8	7° 08′	635
11	1 " 9	6° 17′	586
10	1 " 10	5° 43′	528
9	1 " 11	5° 11′	480
8	1 " 12	4° 46′	440
7.75	1 " 13	4° 24′	406
7	1 " 14	4° 05′	337
6.5	1 " 15	3° 49′	352
6.25	1 " 16	3° 35′	330
6	1 " 17	3° 22′	310
5.5	1 " 18	3° 11′	293
5	1 " 19	3° 00′	277
5	1 " 20	2° 52′	204
4	1 " 25	2° 18′	218
3.3	1 " 30	1° 55′	155
2.8	1 " 35	1° 38′	151
2.5	1 " 40	1° 26′	132

Hill-Climbing Formulas (Worby Beaumont)

W = Weight of car and load in pounds.
w = Weight of car and load in tons.
H = Total ascent in feet.
L = Length of hill in feet.
R = Road resistance in pounds per ton weight of car and load.
r = Air resistance in pounds = $V^2 A$ 0.0017.
V = Velocity of car in feet per second.
A = Area of car in square feet presented to air resistance.
T = Time occupied in ascent in seconds.
E = Efficiency of transmission of power from engine to road wheels.
$H.P.$ = Effective horse power of engine.
p = Power given off at road wheels or work done in ascending hill.
S = Speed of ascent in miles per hour.

Then if P = Mean effective cylinder pressure
L = Length of stroke in feet.
A = Area of piston in square inches.
N = Number of useful or firing strokes per minute,

the brake horse-power of petrol or steam engines, having a mechanical efficiency of E, is

$$\frac{EPLAN}{33000}$$

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For compound steam engines the number of useful working strokes are those occurring in the low-pressure cylinder, and the mean effective pressure in the high-pressure cylinder or cylinders is referred to the area of the low-pressure cylinder.

The power given off at the road wheels during the ascent of the hill is

$$p = \frac{HW + (R\,w + r)\,L}{T\ 550}$$

and the brake horsepower required at the engine with a selected value of E is

$$HP = \frac{HW + (R\,w + r)\,L}{TE\ 550}$$

With the other conditions known, the efficiency may be found from

$$E = \frac{HW + (R\,w + r)\,L}{HP.\ T\ 550}$$

the speed of the ascent in miles per hour from

$$S = \frac{L}{\dfrac{HWL + (R\,w + r)}{HP.\ E\ 550}\,L} \times 1\ 466$$

and the time occupied in the ascent from

$$T = \frac{HW + (R\,w + r)\,L}{HP.\ E\ 550}$$

Unless the probable speed of the car is high, or the wind velocity such that the pressure upon the surface of the car presented to air resistance opposing motion approaches that due to the speed of the car through still air, then the quantity r may be omitted from the foregoing expressions without introducing more than slight error.

Speed Formula

To reduce A miles in B seconds to miles per hour,

$$A \times \frac{3600}{B} = \text{miles per hour.}$$

Speed Equivalents in American and French Measurements

1 mile per hour	=	88	ft. per minute.
	=	1.46	ft. per second.
	=	27.8	metres per minute.
	=	0.463	metres per second.
1 km. per hour	=	0.624	miles per hour.
	=	54.9	ft. per minute.
	=	0.914	metres per second.

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Rate of Speed in Miles Per Hour for Elapsed Time Over the Measured Mile From One to Three Minutes

Time Over Measured Mile		Rate of Speed in Miles per Hour	Time Over Measured Mile		Rate of Speed in Miles per Hour	Time Over Measured Mile		Rate of Speed in Miles per Hour
Min.	*Sec.*		*Min.*	*Sec.*		*Min.*	*Sec.*	
1	0	60.00	1	27	41.38	1	54	31.58
1	1	59.00	1	28	40.91	1	55	31.30
1	2	58.06	1	29	40.45	1	56	31.03
1	3	57.14	1	30	40.00	1	57	30.77
1	4	56.25	1	31	39.56	1	58	30.50
1	5	55.38	1	32	39.13	1	59	30.25
1	6	54.54	1	33	38.71	2	0	30.00
1	7	53.73	1	34	38.29	2	3	29.26
1	8	52.94	1	35	37.89	2	6	28.57
1	9	52.17	1	36	37.50	2	9	27.90
1	10	51.42	1	37	37.11	2	12	27.27
1	11	50.70	1	38	36.73	2	15	26.66
1	12	50.00	1	39	36.36	2	18	26.08
1	13	49.31	1	40	36.00	2	21	25.53
1	14	48.65	1	41	35.64	2	24	25.00
1	15	48.00	1	42	35.29	2	27	24.49
1	16	47.37	1	43	34.95	2	30	24.00
1	17	46.75	1	44	34.61	2	33	23.53
1	18	46.15	1	45	34.28	2	36	23.07
1	19	45.57	1	46	33.96	2	39	22.64
1	20	45.00	1	47	33.64	2	42	22.22
1	21	44.44	1	48	33.33	2	45	21.81
1	22	43.90	1	49	33.03	2	48	21.42
1	23	43.37	1	50	32.72	2	51	21.05
1	24	42.85	1	51	32.43	2	54	20.69
1	25	42.35	1	52	32.14	3	0	20.00
1	26	41.86	1	53	31.86	..	..	.....

Revolutions per Minute of Auto Road Wheels at Different Rates of Speed

Diameter of Wheel	MILES PER HOUR									
	2	4	6	8	10	15	20	25	30	40
Inches										
24.....	28	56	84	112	140	210	280	350	420	560
26.....	26	52	78	103	129	194	258	323	388	517
28.....	24	48	72	96	120	180	240	300	360	480
30.....	22	45	67	90	112	168	224	280	336	448
33.....	20	41	61	82	102	153	204	255	306	408
36.....	19	37	56	75	93	140	187	234	280	374
42.....	16	32	48	64	80	120	160	200	240	320

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Striking Energy of Automobiles (Durand)

Let W = weight of automobile, measured in pounds.
F = average force over the distance required to bring automobile to rest, measured in pounds.
L = distance over which force is exerted to bring automobile to rest, measured in feet.
V = velocity in feet per second,

Then Energy $= \frac{W V^2}{64.4}$ in foot pounds,

$F L$ = measure of destructive work done in stopping the machine,

Then $F L = \frac{W V^2}{64.4}$

$$F = \frac{W V^2}{64.4 L}$$

$$L = \frac{W V^2}{64.4 F}$$

Or, otherwise and more generally, let E be any fraction or amount of energy which is lost in overcoming an average resistance F over a distance L.
Then:

$$E = F L$$
$$F = E \div L$$
$$L = E \div F$$

In the actual case of automobile collision, F, as has been carefully noted, is merely a distance average of the force developed. It means simply that there will be as much destructive work done as would correspond to the exhibition of a force F over a distance L. Actually, the destructive work will be made up of parts, each one of which may consist of a very much larger force, acting through such smaller distance as may be needed for the rupture of the part in question.

Transmission Efficiency of Different Types of Mechanism (Worby Beaumont)

Source of Loss of Power	Amount of Loss Per Cent.	Efficiency Per Cent.
		100
When driving direct:		
One chain	3.0	....
One and one-half pairs of bearings	7.5	89.5
With epicylic speed gear in operation, add	15.0	74.5
When driving direct:		
One set of gear	5.0	....
Two pairs of bearings	10.0	....
Partially active bearings	3.0	82.0
With change-speed reduction gear in operation, add	12.0	70.0

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Source of Loss of Power	Amount of Loss Per Cent.	Efficiency Per Cent.
		100
One set of gear	5.0	....
Three pairs of bearings	15.0	....
Equivalent of two chains	6.0	74.0
Two sets of gear	10.0	....
Four pairs of bearings	20.0	70.0
Two sets of gear	10.0	....
Five pairs of bearings	25.0	....
Equivalent of one chain	3.0	62.0
Equivalent of three sets of gear	15.0	....
Five pairs of bearings	25.0	60.0

Traction Effort on Various Surfaces (Norris)

On rails or plates	5.16 pounds per ton
Asphalt or hardwood	12.24 " " "
Macadam	30.60 " " "
Loose gravel	140 to 200 " " "
Sand	400 " " "
With different tires (comparatively)	
Iron	60 " " "
Solid Rubber	60 " " "
Pneumatic	45 " " "

Power Consumed in Moving a Plane Surface at Different Velocities in the Open Air (Kempe)

SPEED IN		Horse-power per Square foot of Effective Surface	SPEED IN		Horse-power per Square foot of Effective Surface
Miles per Hour	Feet per Minute		Miles per Hour	Feet per Minute	
10	880	0.013	50	4,400	1.64
15	1,320	0.044	75	6,600	5.54
20	1,760	0.105	100	8,800	13.13
25	2,200	0.205	150	13,200	44.29
30	2,640	0.354	200	17,600	105.00

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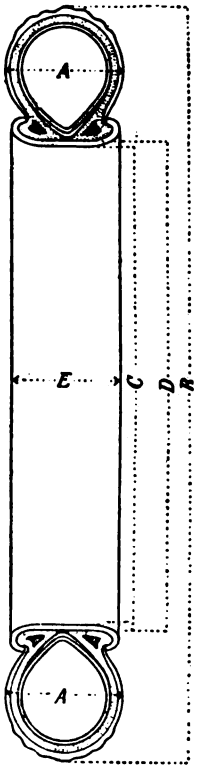
Clincher Tire and Rim Dimensions



A Inches	*B* Inches	*C* Inches	*D* Inches	*E* Inches
2 1/2	26	18 3/4	19	1 3/8
3	26	19 3/4	20	1 3/8
2 1/2 and 3	28	21 3/4	22	1 3/8
2 1/2 and 3	30	23 3/4	24	1 3/8
3	32	25 3/4	26	1 3/8
3	34	27 3/4	28	1 3/8
3	36	29 3/4	30	1 3/8
3 1/2	28	20 11/16	21	1 3/8
3 1/2	30	22 11/16	23	1 1/2
3 1/2	32	24 11/16	25	1 1/2
3 1/2	34	26 11/16	27	1 1/2
3 1/2	36	28 11/16	29	1 1/2
4	30	21 11/16	22	2
4	32	23 11/16	24	2
4	34	25 11/16	26	2
4	36	27 11/16	28	2
4 1/2	32	22 11/16	23	2 1/4
4 1/2	34	24 11/16	25	2 1/4
4 1/2	36	26 11/16	27	2 1/4

Metric Tires and Their American Equivalents

Metric Sizes	Approximate Size in Inches
650 x 65	26 x 2 1/2
700 x 65	28 x 2 1/2
750 x 65	30 x 2 1/2
800 x 65	32 x 2 1/2
830 x 65	33 x 2 1/2
860 x 65	34 x 2 1/2
700 x 85	28 x 3 1/4
750 x 85	30 x 3 1/4
800 x 85	32 x 3 1/4
860 x 85	34 x 3 1/4
760 x 90	30 x 3 1/2
810 x 90	32 x 3 1/2
840 x 90	32 x 3 1/2
870 x 90	34 x 3 1/2
910 x 90	36 x 3 1/2
960 x 90	38 x 3 1/2
1010 x 90	40 x 3 1/2
815 x 105	32 x 4

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Metric Sizes	Approximate Size in Inches
875 x 105	34 x 4
915 x 105	36 x 4
820 x 120	32 x 4 1/2-5
850 x 120	33 x 4 1/2-5
880 x 120	34 x 4 1/2-5
920 x 120	36 x 4 1/2-5
1020 x 120	40 x 4 1/2-5
1080 x 120	42 x 4 1/2-5

Proportions Between Axle Loads and Tire Sizes Adopted by American Tire Makers

2 1/2-inch tires, all diameters	225	pounds per wheel
3- inch tires, all diameters	350	" " "
3 1/2 x 28-inch tires	400	" " "
3 1/2 x 30-inch tires	450	" " "
3 1/2 x 32-inch tires	555	" " "
3 1/2 x 34-inch tires	600	" " "
3 1/2 x 36-inch tires	600	" " "
4 x 30-inch tires	550	" " "
4 x 32-inch tires	650	" " "
4 x 34-inch tires	700	" " "
4 x 36-inch tires	750	" " "
4 1/2 x 32-inch tires	700	" " "
4 1/2 x 34-inch tires	800	" " "
4 1/2 x 36-inch tires	900	" " "

For weights in excess o' 1,000 pounds per wheel, 5-inch tires and over are recommended. Weights given apply to car without passengers.

Air Pressures for Inflating Pneumatic Tires Recommended by Leading Makers

Diameter of Tire, Inches	Maximum Weight on Wheel, lbs.	Air Pressure in Tire, lbs per Square Inch
2 1/2	225	50
3	350	60
3 1/2	600	70
4	750	80
4 1/2	1,000	90
5	1,000	90

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International (Metric System) Standard 60° Threads

Diameter of Screw	Pitch	Diameter at Root of Thread	Width of Flat at Top and Bottom of Thread
Millimetres	*Millimetres*	*Millimetres*	*Millimetres*
3	.5	2.35	.06
4	.75	3.03	.09
5	.75	4.03	.09
6	1.0	4.70	.13
7	1.0	5.70	.13
8	1.0	6.70	.13
8	1.25	6.38	.16
9	1.0	7.70	.13
9	1.25	7.38	.16
10	1.5	8.05	.19
11	1.5	9.05	.19
12	1.5	10.05	.19
12	1.75	9.73	.22
14	2.0	11.40	.25
16	2.0	13.40	.25
18	2.5	14.75	.31
20	2.5	16.75	.31
22	2.5	18.75	.31
22	3.0	18.10	.38
24	3.0	20.10	.38
26	3.0	22.10	.38
27	3.0	23.10	.38
28	3.0	24.10	.38
30	3.5	25.45	.44
32	3.5	27.45	.44
33	3.5	28.45	.44
34	3.5	29.45	.44
36	4.0	30.80	.5
38	4.0	32.80	.5
39	4.0	33.80	.5
40	4.0	34.80	.5
42	4.5	36.15	.56
44	4.5	38.15	.56
45	4.5	39.15	.56
46	4.5	40.15	.56
48	5.0	41.51	.63
50	5.0	43.51	.63
52	5.0	45.51	.63
56	5.5	48.86	.69
60	5.5	52.86	.69
64	6.0	56.21	.75
68	6.0	60.21	.75
72	6.5	63.56	.81
76	6.5	67.56	.81
80	7.0	70.91	.88

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United States Standard 60° Screw Threads

Diameter of Screw	Threads per Inch	Diameter at Root of Thread	Width of Flat at Top and Bottom of Thread
1/4	20	.185	.0062
5/16	18	.2403	.0069
3/8	16	.2936	.0078
7/16	14	.3447	.0089
1/2	13	.4001	.0096
9/16	12	.4542	.0104
5/8	11	.5069	.0114
3/4	10	.6201	.0125
7/8	9	.7307	.0139
1	8	.8376	.0156
1 1/8	7	.9394	.0179
1 1/4	7	1.0644	.0179
1 3/8	6	1.1585	.0208
1 1/2	6	1.2835	.0208
1 5/8	5 1/2	1.3888	.0227
1 3/4	5	1.4902	.0250
1 7/8	5	1.6152	.0250
2	4 1/2	1.7113	.0278
2 1/4	4 1/2	1.9613	.0278
2 1/2	4	2.1752	.0313
2 3/4	4	2.4252	.0313
3	3 1/2	2.6288	.0357
3 1/4	3 1/2	2.8788	.0357
3 1/2	3 1/4	3.1003	.0385
3 3/4	3	3.3170	.0417
4	3	3.5670	.0417
4 1/4	2 7/8	3.7982	.0435
4 1/2	2 3/4	4.0276	.0455
4 3/4	2 5/8	4.2551	.0476
5	2 1/2	4.4804	.0500
5 1/4	2 1/2	4.7304	.0500
5 1/2	2 3/8	4.9530	.0526
5 3/4	2 3/8	5.2030	.0526
6	2 1/4	5.4226	.0556

STANDARD PROPORTIONS FOR MACHINE SCREWS.

The report of the committee on standard proportions for machine screws of the American Society of Mechanical Engineers is published in the October, 1906, proceedings of the society. The report is substantially in agreement with the recommendations adopted at the joint meeting held in New York, April 11, 1904.

The committee believes the following combined details to be essential in establishing and maintaining a standard for the diameters, threads and heads of machine screws, including, as it does, diameters, threads and limits for the taps which are to be used in connection therewith: (*a*) form of thread, (*b*) diameters, (*c*) number of threads per inch, (*d*) standard reference thread gauges, basic and for screws and taps, (*e*) working gauges for screws and taps, (*f*) limits of variation, measured in the angle of the thread, (*g*) limits of variation in external diameter, (*h*) limits of variation in the pitch of the thread, screws and taps, (*k*) proportions of the heads.

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Properties of Gasoline and Denatured Alcohol (Muntz)

Properties	Gasoline	Denatured Alcohol
Carbon	84.3 per cent.	41.5 per cent.
Hydrogen	15 7 per cent.	13.0 per cent.
Oxygen	.....	45.5 per cent.
Density at 15° C	.708	.834
Boiling point	88° C.	78.5° C.
Calories per Kg	*11,359.65	‡6,521.75
Weight evaporated per hour per dm.² (15.5 sq. in.) of surface:		
1. In experiment room; 18° C	9.37 g. (0.33 oz.)	3.47 g. (0.12 oz.)
2. Outside in the sun; 25° C	47.21 g. (1.66 oz.)	27.08 g. (0.95 oz.)

* 1,302 British heat units per lb. ‡ 752 British heat units per lb.

Specific Gravities Corresponding to Baumé Scale at 60° Fah.

Baumé Degrees	Specific Gravity	Baumé Degrees	Specific Gravity
63	0.728	72	0.695
64	0.724	73	0.692
65	0.720	74	0.689
66	0.717	75	0.685
67	0.713	76	0.682
68	0.709	77	0.679
69	0.706	78	0.675
70	0.702	79	0.672
71	0.699	80	0.669

Reversible Chemical Equations Showing Changes Which Take Place in the Lead Storage Battery (Lamar Lyndon)

CHARGE

$$\xleftarrow{\quad}$$

(a) $PbO_2 + H_2SO_4 = PbSO_4 + H_2O + O$

(b) $Pb + H_2SO_4 = PbSO_4 + H_2$

(c) $c = (a) + (b) = PbO_2 + Pb + 2H_2SO_4 = 2PbSO_4 + 2H_2O$ (2)

$$\xrightarrow{\quad}$$

DISCHARGE

Equation (*a*) expresses the reactions at the positive plate; (*b*) those at the negative, and (*c*) the combined effect is the fundamental equation of the lead storage battery.

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Formulas for Conversion of Thermometer Scales

To convert degrees, Centigrade or Réaumur, into degrees Fahrenheit:

Let F = No. of degrees Fahrenheit.
C = " " " Centigrade.
R = " " " Réaumur.

$$F = \frac{9C}{5} + 32; \qquad F = \frac{9R}{4} + 32;$$

$$C = \frac{5(F - 32)}{9} \qquad R = \frac{4(F - 32)}{9}$$

Freezing point, or 32° Fah. = zero in Cent. or Réaumur.
Boiling point, or 212° Fah. = 100° Cent., or 80° Réaumur.

French and American Equivalent Measures

MEASURES OF LENGTH

French	*United States*
1 meter	39.37 inches, or 3.28083 feet
.3048 meter	1 foot
1 centimeter	.3937 inch
2.54 centimeters	1 inch
1 millimeter	.03937 inch, or 1/25 inch nearly
25.4 millimeters	1 inch
1 kilometer	1093.61 yards, or .62137 mile

MEASURES OF WEIGHT

1 gramme	15.432 grains
.0648 gramme	1 grain
28.35 grammes	1 ounce avoirdupois
1 kilogramme	2.2046 pounds
.4536 kilogram	1 pound
1 tonne or metric ton	.9842 ton of 2,240 pounds 19.68 cwt.
1000 kilograms	2204.6 pounds

MEASURES OF CAPACITY

1 liter (1 cubic decimeter)	61.023 cubic inches .03531 cubic foot. .2642 gallon (American) 2.202 pounds water at 62° F.
28.317 liters	1 cubic foot
4.543 liters	1 gallon (British)
3.785 liters	1 gallon (American)

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Table of Decimal Equivalents of Vulgar Fractions of an Inch in Common Use

	1/64	.0156		17/64	.2656		33/64	.5156		49/64	.7656
	1/32	.0312		9/32	.2812		17/32	.5312		25/32	.7812
	3/64	.0468		19/64	.2968		35/64	.5468		51/64	.7968
1/16		.0625	5/16		.3125	9/16		.5625	13/16		.8125
	5/64	.0781		21/64	.3218		37/64	.5781		53/64	.8281
	3/32	.0937		11/32	.3437		19/32	.5937		27/32	.8437
	7/64	.1093		23/64	.3593		39/64	.6093		55/64	.8593
1/8		.125	3/8		.375	5/8		.625	7/8		.875
	9/64	.1406		25/64	.3906		41/64	.6406		57/64	.8906
	5/32	.1562		13/32	.4062		21/32	.6562		29/32	.9062
	11/64	.1718		27/64	.4218		43/64	.6718		59/64	.9218
3/16		.1875	7/16		.4375	11/16		.6875	15/16		.9375
	13/64	.2031		29/64	.4531		45/64	.7031		61/64	.9531
	7/32	.2187		15/32	.4687		23/32	.7187		31/32	.9687
	15/64	.2343		31/64	.4843		47/64	.7343		63/64	.9843
1/4		.25	1/2		.5	3/4		.75	1		1.0

Table of Approximate Capacities in Liquid Gallons

1	2	3	4	5	6	7	8	9	10	Gallons	Gal'ns per Inch
5 x 12	6x18	6x24	6x36	6x42						6″ diam'r	.122
	7x12	7x18	7x24	7x30	7x36	7x42	7x48			7″ "	.165
		8x15	8x18	8x24	8x30	8x36	8x42	8x45	8x48	8″ "	.217
		9x12	9x15	9x18	9x24	9x30	9x34	9x36	9x40	9″ "	.275
					10x20	10x24	10x26	10x28	10x32	10″ "	.340
						12x16	12x18	12x20	12x24	12″ "	.486

10	15	20	25	30	35	40	45	50	Gallons	Gal'ns per Inch
8x48									8″ diam'r	.217
9x40									9″ "	.275
10x32	10x48								10″ "	.340
12x24	12x34	12x42	12x50	12x60					12″ "	.486
14x18	14x24	14x30	14x38	14x44	14x52	14x60			14″ "	.666
	16x18	16x24	16x30	16x36	16x42	16x48	16x54	16x60	16″ "	.870

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Below are illustrated automobile parts we manufacture.

Note the points in the transmission.

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ENGINE OILERS

TANK STRAINER

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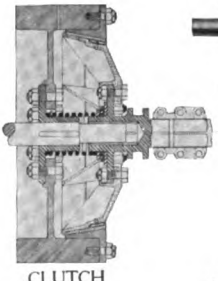
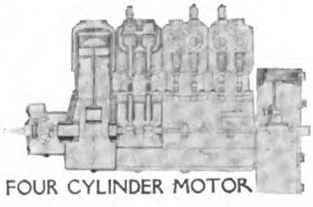
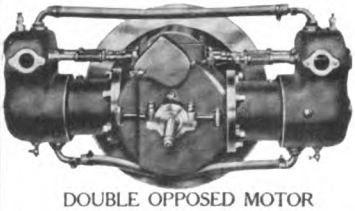


CLUTCH

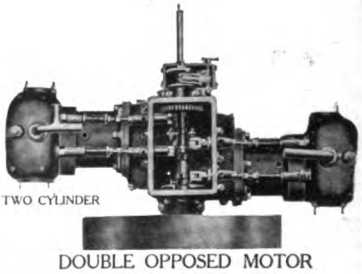


FOUR CYLINDER MOTOR



DOUBLE OPPOSED MOTOR

GREASE CUP



TWO CYLINDER

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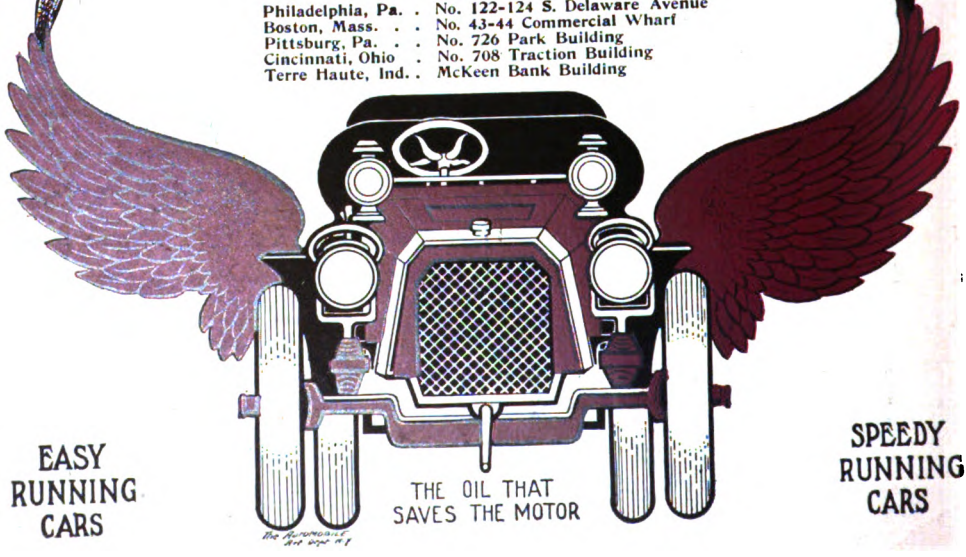

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